

GUPPY ROUNDTABLE

THE OFFICIAL MONTHLY PUBLICATION OF THE
INTERNATIONAL FANCY GUPPY ASSOCIATION

VOLUME 1 ISSUE VII

PUBLISHED BY THE PAN PACIFIC GUPPY ASSOCIATION

JANUARY/FEBRUARY 1994

HELPFUL HINTS

By Jim Russell, Vice President
New England Fancy Guppy Association

When hatching brine shrimp eggs for my guppies, I have found that by adding a little baking soda to the salt water it increases my yield for a longer standing time. If I do not get to the brine shrimp within a couple of hours of the hatch, I end up with an orange soup. Now, my brine shrimp hatches stay alive a lot longer and the losses are minimal.

I use a couple of heaping teaspoons of baking soda for five gallons of salt water. This keeps the water from turning acid during the hatch.

Experiment and see what works best for you.

A SMALL BRINE SHRIMP HATCHERY

By John Costello
Pan Pacific Guppy Association
Corresponding Member

Upside-down two liter plastic soda bottles make very effective brine shrimp hatcheries for the guppy hobbyist.

The narrow mouth of the plastic soda bottle funnels the newly hatched brine shrimp into a small area for siphoning, and the tall, slim shape results in good turbulence when air is applied.

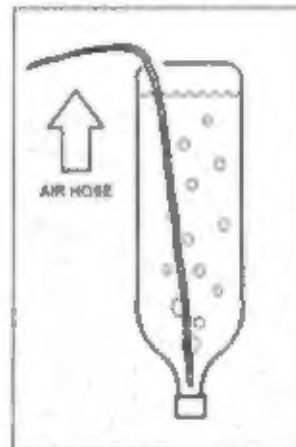
To minimize the salt spray and maintain the structural integrity of the plastic soda bottle, cut only a one or two inch hole in the base (the "top" when the bottle is inverted for hatching). This normally proves to be enough of a hole to siphon out the brine shrimp, and to fill and empty it with water.

A two liter plastic soda bottle is approximately half a gallon

(U.S. Wet Measurements), so the amount of salt to add to the water can be accurately figured from that. A small, empty fish food vial makes a handy measuring cup once it

has been calibrated for the correct amount of salt.

To supply air for the hatch process, airline tubing is dropped through the hole into the narrow neck of the bottle. An air stone can be used, or simply use a twelve inch section of stiff tubing



Another alternative, the guppy hobbyist can utilize is a ten inch length of coat hanger wire carefully inserted into the airline tubing.

A frame can be built to hold the bottle(s) upside-down.

When a bottle becomes dirty after many uses? Throw it away!

INSIDE THIS ISSUE

- 3 RAISING GREAT GUPPIES: PART THREE**
By Jim Alderson, D.V.M.
Learn which Half-Black Red female to breed to produce outstanding male progeny.
- 3 TIPS FOR BEGINNERS**
By Thomas Cor
Learn how to guard your tropical fish, including guppies, against pH shock.
- 4 FISH FOOD OF CHOICE: DAPHNIA**
By Skip Johnson
Known as water fleas, daphnia are a superb live food for most, if not all, tropical fish.
- 8 SEX, PREDATORS AND THEORIES OF EVOLUTION**
By Shannon Strunk
Biology study: Observing Darwin's ideas in action with the assistance of the humble guppy.
- 9 STRESS AND THE AQUARIUM**
By Sherry Brown
Stress is as unhealthy for fish as it is for an aquarist's desire to meddle in the hobby.
- 10 DOOR PRIZES**
By Walter B. Stevens, Jr.
The things you have to do to attract fishroom equipment by the ever watchful eye of whoops!
- 12 GUPPY VARIANTS: PART TWO**
By Marilee Kwartler
Charming page of first tropical fish show attended by world champion guppy breeder.
- 12 GUPPY GAMBITS**
By Mike Horn
Curious information on fish senses: feel, sight, smell and sound.
- 13 GUPPY CENTERFOLD**
Photographs Courtesy Of David Winkler
You select for it, you get it! Second monthly edition of "Guppy Centerfold".
- 15 UNDERSTANDING FISH DISEASE AND TREATMENT**
By Steve Meyer
Treating illnesses in the aquarium with drugs should be done with great caution.
- 20 GUPPIES AND OXYGEN**
By Midge Hill
Synopsis of various experiments regarding oxygen level concentrations and guppies.
- 22 INTERNATIONAL FANCY GUPPY ASSOCIATION NEWS SECTION**
This month's section includes: "Message From The President", revised show schedule, and another sad farewell to a long time friend of the guppy.
- 24 PAN PACIFIC GUPPY ASSOCIATION NEWS SECTION**
This month's section includes: critique of the annual political dinner and meeting, meeting schedule, and monthly best show results.
- 25 STARTING UP WITH GUPPIES**
By Jim Alderson, D.V.M.
Basic information for the novice breeder on how to begin your guppy breeding regimen.

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GREAT GUPPIES: PART THREE

SELECTING THE HALF-BLACK RED FEMALE

By Jim Alderson, D.V.M., President
International Fancy Guppy Association
Pan Pacific Guppy Association

Few lines offer as much variability in selection of females as the Half-Black Reds. They may be gold or gray bodied, with a heavy half black body or very little of the half black markings at all. Their tail coloration may vary from white, to red to almost purple. The pattern of the caudal color may be solid, variegated or crescent shaped. There may be a blending of one or more colors, such as red and white or red and black. Certainly, Half-Black Red females can make excellent show females. The best show type female is usually not the best female to breed for outstanding male progeny.

As I have stated before, I only use

gray bodied Half-Black Red females for breeding because the Half-Black coloration in the body of the male is carried on the X chromosome of the female. I start by selecting the largest females with the most intense Half-Black in the body. At this time, I also select the females on the basis of body shape, discarding all those females with long, narrow bodies as well as those with narrow peduncles. This is very important due to the propensity of the males in this line to develop narrow peduncles.

The last stage of selection occurs at about four months of age. Assuming the females I have remaining are all fairly similar in terms of size and black body color, I will select the final females for breeding on the basis of caudal color. The females that will produce the most intense red

coloration in their male offspring have lavender colored caudal fins. I do not always get these superior colored females in every dropping. The second best females to select are those with a gray-white blending into a red caudal. Thirdly, selection of a female with a bright red caudal yield some excellent males, but in general the red in the caudal will not be as intense as in the males of the previously described females. Avoid using Half-Black Red females with intense white in the caudal as this tends to produce a white crescent at the base of the tail in the male offspring.

Selecting females in many lines of guppies, such as blues and greens is usually not as difficult because they appear very similar. It does appear in the Half-Black Red line many of the male coloration characteristics are present on the female X chromosome. This makes the females role in inheritance and her proper selection more critical.

TIPS FOR BEGINNERS

By Thomas Cor
San Diego Tropical Fish Society

Guard your fish against pH shock. You have all heard how dangerous sudden changes in temperature are for fish, but rapid changes in pH are just as risky and a lot more apt to be done because they are easier to overlook. We can detect hot or cold water by touch; pH is only revealed through testing.

Most aquarium fishes have fairly wide toleration for pH, the measurement of acidity/alkalinity of your water. While such fish may not spawn or achieve their best color unless given their optimum pH, they can survive in water ranging from 6.6 to 7.8. Some have even greater tolerance. For the aquarist this means, among other things, that he can mix fishes

in a community tank that in nature would come from waters with widely different pH levels. It also means that you do not need to constantly test your tanks to keep them at 7.0 (neutral), or some other supposedly ideal level.

Still, you should have and use a pH test kit. Aquariums that are set up for a long period, and which receive relatively infrequent water changes, usually grow gradually more acidic (or in San Diego, we should probably say less alkaline). Thus, when fresh water is added its pH may be quite different from that in the tank, and, if a major water change is involved, may trigger pH shock among the fish. Also, in moving fish from one tank to another, especially from shop to home or one aquarist to another, there is great disparity in pH levels and thus potential for pH shock. San Diego tap water even varies

markedly from one day or week to another, and Los Angeles water from different parts of that city is often quite different.

Preventative steps are relatively easy: (1) Test your water before making major water changes and add it a bit at a time if there is a marked difference (this is better than adding chemicals to equalize the pH levels; fish can readily adjust to gradual changes). (2) Introduce fish to a new or different tank gradually. Float them in a plastic bag and slowly add aquarium water to the bag over a period of a few hours, so that the fish have a chance to adjust to their new pH slowly. (3) Test your tanks from time to time to keep them from becoming too acidic, some tanks that you keep intentionally on the acid side (for tetras, for example), keep in mind that if water is fairly alkaline, that partial water changes for such tanks must therefore be done with special care, that is, gradually.

FISH FOOD OF CHOICE: DAPHNIA

KNOWN AS WATER FLEAS, THESE SMALL CRUSTACEANS ARE A SUPERB LIVE FOOD FOR AQUARIUM FISH

By: Skip Johnson

Recently, it was brought to my attention that one of the easiest to cultivate live foods, Daphnia, is rarely offered in tropical fish shops. This seems odd, because I have had a surplus of this invaluable fish food for more than six years, which I have sold to customers in my aquarium store. In fact, many customers have confirmed what I have found myself: Feeding live Daphnia results in a remarkable improvement in the appearance, health and longevity of fish. I would like to share with you how easy it is to create a perpetual live food reservoir that requires little effort, knowledge or cost.

If fish could write, Daphnia would definitely be at the top of their grocery list. These irresistible, tasty little morsels do not cause indigestion or constipation and are non-fattening. So, just what is this aquatic munchy critter?

Technically speaking, Daphnia (pronounced daff-knee-uh) is a tiny crustacean (aquatic arthropod) that resembles a flea. Normally, they range in size from 1/50 to 1/4 of an inch and are usually off-white to semi-transparent in color. A keen observer can actually see the eggs a female is carrying. Daphnia possess two branch-like arms that they use for locomotion - similar to dog paddling, but much more erratic.

They also have gills for breathing

underwater, so any fear of them invading Rover or Fluffy should be put to rest. Much like Pac-man, they race around gobbling up anything insight that is edible. These hungry characters devour numerous kinds of micro-organisms and organic matter. One of their favorite meals is Euglena, the green-colored organism that shows up in ponds and aquariums as "pea soup" green water. Daphnia also like to gorge themselves on unicellular algae, vegetable matter, yeast, dried milk, egg yolk and even manure.

These little water fleas, as they are sometimes called, love to propagate and are most apt to do so in alkaline water (above pH 7.0) that is between sixty-five and seventy degrees Fahrenheit, with medium light intensity. Incidentally, they are quite content in a relatively small volume of water as long as there is enough food and oxygen to support them. I have successfully kept more than a thousand of them in a gallon of water for several weeks before it was necessary to reduce their population.

One of the reasons Daphnia are able to multiply quickly, from conception to adulthood takes approximately one week, and in such vast numbers is because the females can reproduce with or without the aid of males. During times of plenty, the females cleverly produce more females to take advantage of the excess food supply. Males are able to manufacture "special" eggs that are designed to continue the survival of the species in the event of a major environmental change, such as a drought. These eggs can lie dormant for extended periods of time. In an artificially created environment in which the best conditions are continuously maintained, however, the maximum reproductive potential of a culture can be realized. For Daphnia, this means producing the greatest number of females, which results in even more births, and so on.

(continued on page five)



"Well, Dad said you are a vegetarian!"

Daphnia are a form of plankton. They fair best in calm or still water, such as that found in small ponds. Just about any place that combines fresh water and the right conditions can be a sanctuary for Daphnia. In nature's grand design, however, Daphnia are imprisoned in the lower end of the food chain, where they serve as food for larger aquatic creatures, such as small or young fish.

Basically, Daphnia provide two primary vitamins that are of vital importance to tropical fish, vitamins A and D. Vitamin A is essential for the growth and development of tropical fish and it also serves as an excellent anti-infective agent. Vitamin D is primarily responsible for the production of bone, and all vertebrates are therefore dependent on it. Daphnia also offer small amounts of vitamins B and C, which vary in quantity depending on what foods the Daphnia have consumed. Vitamin B supports tissue growth and stimulates appetite. Vitamin C aids in skin formation and coloration. Finally, Daphnia provide protein, carbohydrates (sugars and starches) and fats.

There are numerous advantages to offering Daphnia in comparison to a diet consisting exclusively of dried foods. Dried foods typically lack essential vitamins. Daphnia provide the necessary vitamins in proportionally balanced quantities. Because they are a live food, Daphnia activate a fish's instinct to hunt.

Overfeeding Daphnia to tropical fish will not pollute aquarium water because they will live until eaten later on. It costs much less to provide Daphnia to your fish. Unlike brine shrimp, there are no difficult or costly requirements needed to cultivate Daphnia to adulthood. Now that you understand the value of Daphnia as a live food source for your fish, let's examine how to successfully establish a thriving culture. To

begin with, it is essential to have a food supply for feeding the Daphnia well in advance. What is needed is a container to hold four times the volume of water of the container that will house the Daphnia. Ideally, a ten-gallon aquarium can be used for this purpose.

The aquarium must be located in a spot where the maximum constant quantity of sunlight will come in contact with it. A south-facing window sill is an excellent location. Otherwise, a fluorescent light must be placed directly on the top of the aquarium and remain lit for eighteen to twenty hours per day (with a four-hour period of darkness between light cycles).

Inasmuch as the winter season drastically reduces the intensity and duration of sunlight, it may be necessary to supplement natural light with artificial light. To determine this, you must discover how long it takes to turn clear water into green. For instance, it would be self defeating if the food reservoir took months to develop only to be consumed by the greedy Daphnia in a few days. There must be enough light to provide a constant source of green water. The key to successfully raising Daphnia is to maintain an abundant supply of micro-organisms.

The aquarium should be filled with hard (above one hundred parts per million total dissolved solids), alkaline water (preferably above pH 8.0). You do not need to add a filter, airstone, gravel or anything else to the aquarium. With a little time (less than two weeks) and a lot of light, the water should turn green and darken with age. To speed this process up a bit, add two or three good-sized feeder goldfish (about two inches in length).

Using this method, it is possible to develop thick green water in

less than a week. Once viability has been reduced to the point where an object two inches from the aquarium glass is difficult to distinguish, you are ready to begin your Daphnia cultures.

The next step is to select suitable containers to take with you when you go out to find a collection of Daphnia. Although some collectors choose canning jars for this purpose, I have found that one-gallon wide-mouthed glass jars work the best. You will need only two to get started. Frequently, local supermarkets or restaurants use this size jar, often throwing them away. If all else fails, you can always purchase a gallon of something (such as fruit or mayonnaise) with the intention of salvaging the jar after the contents have been consumed. You will not need the lids.

Daphnia can be collected virtually any time of the year from any natural body of shallow fresh water (without strong currents) by using a brine shrimp net and a jar. By stirring the bottom slightly, even through a hole in the ice, a few figure-eight sweeps with the net should yield good results. For those who are unwilling to venture outdoors during the winter, have no fear. The peak season for Daphnia runs from May to July, making weather no obstacle. During these peak periods, it is possible to capture a multitude of Daphnia just by dipping the jar in the water. If you find a body of water that is populated by tadpoles, you will most assuredly reap an astonishing number of creatures in just a few seconds.

When you return home with your prize, scrutinize it thoroughly for any aliens that may be accompanying the Daphnia. Some innocent-looking creatures are often prodigious monsters that are detrimental and even lethal to fish. They must be identified and removed! A short list of unwanted

(continued on page six)

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characters that might have come along for the ride include Notonecta (a water bug), dragonfly nymphs and hydra, all of which are notorious for attacking small fish. If you have any doubt at all when it comes to some strange-looking thing, discard it. It is not worth the risk. If for one reason or another you are unable to collect your own Daphnia, try purchasing them from someone. Many wise fish farmers are already using them and probably have plenty to spare. One half pint of live Daphnia sells for about one dollar.

Fill two jars with green water from the ten-gallon aquarium and place them in a location with medium light intensity that is about room temperature (seventy-two degrees Fahrenheit). Pour the Daphnia into a small plastic bag and allow it to float in the ten-gallon aquarium for ten minutes. This will help equalize the water

temperature in the bag with that in the jars. Using a cup, double the volume of water in the bag of Daphnia with water from the aquarium. Let the bag sit another ten minutes. This will allow the Daphnia to gradually adjust to a different water chemistry.

Carefully pour the bag of Daphnia through the brine shrimp net; discard the water in the bag. Place the Daphnia in one of the gallon jars. That is it! Your culture has been activated. Those tiny crustaceans will be thrilled with all the food that is available. Depending on the quantity of Daphnia that has been added to the first jar (at least one hundred or so), it will likely be several days before a noticeable difference takes place.

As the Daphnia gorge themselves and increase in number, the green

water will begin to clear, eventually clearing completely. At this point, you can remove some of the Daphnia with either the brine shrimp net or a kitchen strainer. These can be fed to your fish. However, a substantial portion must always be left in the jar to keep the species multiplying. If you become too greedy at this stage of the game, you may end up with nothing. The decision to regulate the population of your food source should be made cautiously, although it is a totally subjective judgment call. If, on the other hand, you postpone the partial removal of some of the Daphnia, excessive numbers will cause them to eat themselves out of existence. Learn to watch for signs of distress.

Being certain that the green water has become clear in the first jar, pour the entire contents through

(continued on page seven)

the brine shrimp net. Throw away the exhausted water and place the remaining hungry Daphnia into the second jar of fresh green water. After thoroughly rinsing the first jar with plain water, refill it with green water from the holding aquarium.

At this point it should be obvious that the ten-gallon aquarium has much less water in it. Therefore, it must be filled with fresh, dechlorinated water that is hard and alkaline. Water from an established aquarium housing tropical fish that would normally be discarded after a partial water change could be used, provided it is not acidic and soft. A simple formula for raising the pH and alkalinity of water is to add one level teaspoon of sodium bicarbonate (baking soda) to twenty gallons of water in order to raise it 0.1 on the pH scale.

During these periodic transfers of either Daphnia to water or water to water, it is of paramount importance never to allow any crustaceans to enter your green water reservoir or it will be destroyed. After several weeks of moving Daphnia back and forth between jars, the colony should be large enough in numbers that a significant amount of Daphnia can be consistently taken without weakening or threatening the ability of the cultures to regenerate.

You will observe that Daphnia are enthusiastically accepted by most, if not all, species of tropical fish, including guppies, and that noticeable improvements in their condition soon follow. If you would like to increase the volume of live food, the green water reservoir should be increased in size. A gallon of Daphnia can provide a substantial amount of nutrition for several dozen guppies, or other small tropical fish.

Some additional foods that are readily taken by Daphnia include

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tiny pieces of the outer green leaves of lettuce, a tweezer-size pinch of baker's yeast or dried milk once a week and even one or two drops of fry food per week. The advantage of green water is that it is essentially free to produce and is very nutritious for the Daphnia.

As a final note, there are about twenty different types of Daphnia found in the United States. There are also other types of micro-organisms, such as cyclops (commonly called water mites; excellent for feeding newborn fry) and cypria (sometimes known as seed shrimp), that are raised in the same manner as Daphnia with

SEX, PREDATORS AND THEORIES OF EVOLUTION

ECOLOGICAL OBSERVING DARWIN'S IDEAS IN ACTION

By: Shannon Knowles

What shapes a creature's life course and behavior? More than one hundred thirty years ago, Charles Darwin laid out his elegant and then shocking theory that it was natural selection, the survival of individuals most suited to the environment, that molded species over evolutionary time. But until very recently, Darwin's ideas remained unproved. Now, for the first time, studies in the wild are rigorously demonstrating the particulars of how evolution works.

Last month, David Reznick, an evolutionary ecologist at the University of California at Riverside, published the results of an eleven year experiment involving guppies living in the Aripo River of Trinidad. The experiment proved that predators are among the principal forces driving the evolution of species, just as predicted by a mathematical model that modern biologists had formulated to refine Darwin's theme.

THE WATERFALL EFFECT

According to the model, animals that are preyed on as adults will evolve to produce as many babies as they can, as early in life as possible. "If your chances of dying young are good, then having babies early is important," says Reznick. There is a trade-off, however, because the earlier a species reproduces, the sooner it burns out, so to

speak, and the shorter its life span. Conversely species whose juveniles bear the brunt of predatory attacks tend to have their young later in life, in effect choosing to bear harder offspring over a longer adult life.

The experiment that Reznick



devised, along with his colleagues Heather Bryga and John Endler of the University of California at Santa Barbara, was delightfully uncomplicated. The researchers tested the mathematical model by simply moving two hundred guppies from the base of a twenty-foot waterfall in the Aripo River, where predatory fish called cichlids gobble

only adult guppies, to the top of the waterfall. There, the single predator is a killifish, a species that devours only young guppy fry.

After sixty generations, the experimental guppies had evolved in their new environment just as the model predicted. The fish now reach sexual maturity nine days later than their downstream counterparts, and they are appreciably larger when they first give birth. What's more, they have fewer offspring in their first brood, apparently saving themselves for future breeding opportunities.

Reznick's is only one of several recent studies verifying Darwin's grand theory in nature. In others, for instance, parasites are proving to be an even more potent agent of evolutionary change than predators. Marlene Zuk, a colleague of Reznick's at Riverside, recently completed a study demonstrating that parasites affect how female jungle fowl, the wild ancestors of bantam chickens, choose their mates. She found that a nematode parasite, which lives in the gut, renders the eye and comb of the male jungle fowl dull and consequently unattractive to females. The females prefer instead cocks bright of eye and comb, who will bestow their offspring with genes that will make them resistant to parasitic infestation.

Taken together, studies such as Reznick's and Zuk's strike a resounding blow to all biologists and scientists who would doubt the veracity of evolution. It has taken more than a century, but Darwin's theory is finally being put to the test, and it is coming through with flying colors through the assistance of the humble guppy.

STRESS AND THE AQUARIST

By: Sherry Brossard
Central New York Aquarium Society

Those of us in the fish hobby are well aware that stress kills or at least renders our fish less than healthy. A stressed fish will no longer eagerly feed or interact with the inhabitants of its tank. Even low levels of stress will take a toll over an extended period of time, levels so low we often do not become aware of it until it is too late to save the fish. The cure, if we have been lucky enough to observe the telltale signs in time, requires removal of the cause of stress.

Just as stress is unhealthy for our fish, so too is it unhealthy for our desire to continue as aquarists. Although many of the people who drop out early in their involvement in the hobby use such phrases as "lost interest", "not enough time these days", "more important things to take care of", the reality is that the hobby stopped being fun for them. The question all clubs ask is "Why?". I believe stress is one major answer.

Stress in the tropical fish hobby

comes a multitude of forms. It can be as simple as one tank too many or as complex as setting unrealistic goals or having no goals at all. We need to examine ourselves from time to time to see if where we are at is where we

want to be and decide where we would like to go. Ask yourself if what you are doing now is making you a happy and contented aquarist or if you are starting to drift off to other pursuits and thinking of cutting back on your involvement with your fish and club.

In the first excitement of joining a club, with the attendant exposure to the astonishing array of fish, equipment and techniques, and learning how to take care of our charges better and easier, we often get carried away, sooner or later becoming stressed out. Determining your personal stress point should be your primary goal. Just as you adjust and monitor your tanks frequently to provide the optimum environment for your fish, you need to monitor and adjust your own life style and approach to the hobby frequently to provide for your optimum enjoyment.

Let us discuss the questions you need to ask yourself in connection with the most common stress-causing activities and the results you want to gain. What are your goals? Do you want to show fish and win trophies? Would you rather rack up breeding points? How quickly do you want to reach

each level of breeding expertise? Would you rather grow plants than fish? Do you want to do both equally well? Is your preference relaxing and watching your fish, with a little breeding and a little showing as added pleasures? Each of these goals requires a different approach to the hobby. Know thyself is the key here. For myself, I am not a competitive person. I prefer to set my own goals and work toward them at my own pace. Others eat up the friendly rivalry of shows and breeder points. Set your goals accordingly and reassess them often. If you are not reaching them, then your goals are wrong or your expectations are unrealistic. Ask yourself if you are enjoying your fish and your club or are you starting to find them less and less important.

How many tanks can you handle and still not feel uncomfortable and pushed for time? At what point do you start skimping on water changes, filter cleanings, disease-outbreak checks, varying foods, water-quality tests and other care? If you are not skimping on care, are you skimping on moments to enjoy them, instead, doing whatever is absolutely necessary and running on to other pressing demands? Each time you come back from an aquarium shop, auction, or meeting with additional fish that require yet

(continued on page nine)

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another tank, stop and think about whether you are looking forward to it or dreading it. When the excitement dies, you have reached your stress point. With me, it is eight tanks from five to fifteen gallons. I can push it up to ten or eleven tanks, but then I have to start actively plotting how to cut back to eight tanks again. Whether your stress point is two or two hundred tanks, find it and remember it whenever tempted to add more fish.

What types of fish do you covet? When you stop by the local shops, what do you ask for? When the auctions come around, do you peruse the bags for a particular species? If so, you may be ready to specialize, which is a good way to regain control of your hobby. You know what your goals are and how many tanks you can handle. Now you need to determine what fish fit your goals. If you are into showing, which fish do you enjoy that also do well in competition? Look for individual specimens you can successfully grow out and groom to be winners. You are looking for quality fish and eliminating the rest. Your acquisitions will be few but meaningful.

Perhaps you would rather breed and want to gain points as quickly as possible. If so, you will be looking for easy or proven breeders or fish that are worth more points. You are going to be breeding and "dumping", passing along your bred and points-gained pairs and extra breeding stock to other hobbyists, thus freeing up your tanks for new potential breeders.

You say you would rather just enjoy your fish? No problem. Decide what interests you the most, how many tanks you can keep without being stressed and go for it. Your concern here is whether you enjoy single-species tanks or community type, whether you enjoy a mixed bag or certain fish in particular, whether you want to keep a little of everything or a lot of something. You will be looking for long term keepability, so be sure what catches your eye will keep your attention after the newness wears off. This part of your self-analysis will define your goals enough to limit impulse buying for the wrong reasons - it is pretty, it is unusual, it is rare, or no one else in my club has it.

How much time do you really

devote to your fish-keeping hobby? This includes the crucial time spent maintaining your tanks as well as time spent on meetings, shopping, attending shows and auctions, getting together with fellow fishnuts and talking on the phone with said fishnuts. Do not forget to include the time you spend watching your fish in action. If you can not remember when you last sat down and observed your tanks for more than a minute or two without doing anything else like water changes or feedings, then you are a good candidate for stress burnout.

Are you comfortable with how you use your valuable time, or do you feel pushed and pressured at times? How much spare time do you really have for anything, much less enjoying and caring for your fish? Is this your only hobby, or do you have other interests? If your main hobbies are your fish and watching Monday night football with your spouse, then you have obviously got more time and energy for this particular pursuit than someone who's into two jobs, school and three other hobbies besides repainting the house and fixing

(continued on page eleven)

DOOR PRIZES

OR, WHAT YOUR WIFE DOES NOT KNOW, WILL NOT HURT HER

By Walter D. Stevens, Jr.
Norwalk Aquarium Society

I can not understand why it never occurred to me before and why more people do not attend multiple monthly aquarium society meetings. I now attend as many meetings a month as I can. If there is a club within driving distance, I attend a meeting. I am learning a lot and meeting a myriad of nice people and, most importantly, there is a hidden value to the door prizes that are available at each meeting.

I am not Irish, but my wife is starting to believe I have the

"luck of the Irish". After every aquarium society meeting I now bring home some miscellaneous piece of paraphernalia necessary for my next setup. How can I possibly say no to a free door prize? I do not have to sneak the equipment in anymore under cover of darkness. My wife is amazingly understanding now. She knows it is free and I am truly one of the "luckiest guys" walking around on the face of the earth. I have an amazing fishroom setup with an abundance of free "door prizes" to prove it.

I can remember the good old days when I would quietly sneak new aquarium equipment into

my cellar fishroom and down she would come to see what I was up to. "Oh, another aquarium! What do you need that for? You already have twenty!" Now, no more justifying for me. I am just so lucky lately, that the aquarium equipment keeps rolling in with every monthly aquarium society meeting I attend.

I must admit though, summer had its disadvantages - no meetings and my trunk got so full of "door prizes" that I was getting a bit nervous. Thank goodness it's fall again. This season I am going to win big.

Hope to see you at an aquarium society meeting and if you need any equipment, remember those door prizes keep coming with every meeting you attend. Just do not tell your wife about me, she may know mine.

GUPPY ROUNDTABLE

up the garage. Again, determine your stress point time-wise.

How many hours a week can you happily play with your fish and fishnut friends before starting to avoid both. Remember, you are not "Super Aquarist". Separate your high-payoff items in terms of pleasure and furtherance of your goals from the low-payoff tasks so that your time and energy are used wisely. Stick to what is important to you and do not get sidetracked by others' enthusiasms. Know where you spend your time and energy and why. Analyze your life style and work habits. I am not into schedules. If you are not either, then do not try the "if it is 7:00 PM on Tuesday, this must be change-the-water-in-the-fifty gallon tank time." Locking yourself into an unrealistic schedule causes stress in laid-back people. On the other hand, if schedules relieve stress for you, as they do for many people, by all means draw one up and follow it. Just be sure you run the schedule instead of vice versa. Allow for alternatives and flexibility.

When calendars collide and family demands conflict with your hobby, pressures creep up and your energy drains. You begin to resent the hobby as a cause of discomfort and upset in your life. Before this happens, think about what you would do if various possible crises occurred. What options would you choose? It may be as little as dropping out of competing or breeding or cutting back on your tanks temporarily, or it may need to be as drastic as giving up your tanks completely.

If drastic steps were necessary, would you want to keep some involvement with your club and the hobby in general in hopes of being able to become more active later, or would you just drop out? Why? If you would just drop out, then it is time to discover where your enthusiasm went and what you can do to regain it.

Priorities constantly change, both in

and out of the hobby. Can you successfully juggle multiple projects and demands that hit you at once? Have you set your top priorities for your leisure time? Again, know thyself.

I have generally got several activities going at once, with interests and hobbies that constantly shift emphasis in my life. This means I have to decide how much time and energy go where and when and still leave time for serendipity. I never know when I will luck into an opportunity to learn something I have always wanted to know, and flexibility counts! Set your own long and short-term goals and examine them frequently, adjusting whenever you find yourself sidetracked or stressed.

Now that you are spending less time and money on acquiring livestock and additional setups to house them, take a look at your current equipment. Are you still making do with heaters, pumps, filters and ancient tanks bought used at auctions or garage sales? Do some of your tanks still have make-do lighting and pieces of glass for covers? Would you be proud to display them in your living room or are they only fit for the basement? What about items that would ease the time and effort of caring for your fish-things like automatic water changers or

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Searching for anyone with Black and White or Color photographs of fancy guppies they would enjoy sharing with subscribers in the new "GUPPY CENTERFOLD" section in Guppy Roundtable. Photographs may be pictures of award winning specimens at International Fancy Guppy Association sanctioned shows or photographs of fish in bathroom setups.

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feeders? Could you buy me frozen or live foods or a better variety of dry foods? Having proper, quality equipment will relieve stress on you and your fish.

Finally, I will remind you no man or woman is an island, we are all individuals. Tailor your goals to help you identify and defeat the hidden stresses affecting your involvement with this hobby, do not allow yourself to become stretched to your limit, anticipate and prepare for potential crises, and focus on the parts of fishkeeping that bring you the most pleasure and least pain. Your stress from this particular source will go down and your desire to continue as an aquarist will delight you, your club and hobby.

GUPPY VARIABLES: PART TWO

MY FIRST TROPICAL FISH SHOW (CIRCA 1975)

By: Stephen Kwartler
Bronx Guppy Club
East Coast Guppy Association
South Jersey Guppy Group

One day while reading through a copy of a tropical fish magazine I saw all of these advertisements for "fancy delta tailed guppies" of all colors. These breeders selling their fish were from all over the United States. They described their strains as show quality and gave the color strains names. I remember the Chartreuse Guppy, DeGaulle Guppy, King Cobra and many others.

I did not realize how many people were involved with this little fish. I knew I had to get my hands on some of these guppies. At that time I was inexperienced and was hesitant to buy fish via mail order. So I did the next best thing. I joined the local aquarium society.

My local club was the Bronx Aquarium Society.

At the very first meeting I met Nancy and Tony Sechelli who were guppy breeders as well as owners of their own pet shop. They were serious breeders. In the back of their store they had about fifty tanks just for guppies. Tony had a refrigerator vat just for aging water located high above his tanks which he could fill his tanks by gravity. Boy, this sure seemed involved just to raise guppies. He told me how important it was to do water changes and how his guppies grew bigger because of it.

He told me he had a fish room in his basement and the next day he took me to see it. What a sight, tank after tank of guppies. I had to have some of these no matter the cost. I went home and decided to break down some tanks so I could make room for some new guppies.

I went to visit Tony at the pet shop and he told me about an upcoming fish show. He told me that besides guppies there would be all types of fish and he insisted I attend. Well, that weekend could not come quick enough.

We arrived at the show site and there were people everywhere setting up tanks, carrying water, bags of fish on tables, people setting up tanks with decorations, all this just for fish! I was told that after everyone finished setting up that all different fish classes would be judged. Judging fish! You have got to be kidding. But, yes indeed, the fish as well as the decorated aquariums were judged. My friend Tony took first place with his guppies. That day I met more "fish" people than I had ever known. I was hooked.

When we got home, Tony gave me some of his guppies. I think they were Half-Black Yellows and Blues. I was ready to start breeding my own line of champion guppies.

Next month: My First Fish Room.

GUPPY GAMBITS

By: Mike Horn
NATIONAL AQUARIUM NEWS May 1979

Fish see differently than animals and many birds. Their eyes are on the sides of their heads and give them vision that is almost circular. Each eye can see a 180 degree arc with a thirty degree tap in front. Objects directly behind cannot be seen. They can detect slight variations in form and see the same color spectrum that humans see - red through violet. They can focus on near objects and can see small movements in distant objects. Fish that hunt by smell usually have tiny eyes, such as some types of catfish.

Hearing is much more complex. Fish have no external ear opening and hear by sensing vibrations through ear lobes in its skull and

lateral line. Sound is vibrations; any vibration in the air (talking) is picked up only dimly by fish. On the other hand, pecking on glass, while it may not seem loud to you, sets up very strong vibrations that can be nerve-racking for your poor fish. If you have ever been inside a barrel while someone beat on the outside it might give you an idea of what it feels like to them. Low frequency vibrations such as walking across a room can be picked up by their lateral line. The nerve runs under this with sense organs connecting the bottom of the pores. They can sense currents, pressure changes and other things through this.

Smell is closely related to taste, although the object must be in

contact to taste it. The nostrils are blind sacs lined with tissue sensitive to odors. The act of swimming or water currents carries water through the nostrils. Odors are used by some fish to find the right stream for spawning. Alarmed fish, as well as sick or injured fish, give off odors apparent to other fish. Barbels (whiskers) are actually taste organs. They are used to aid fish in finding food, especially at night when eye sight is almost useless.

Feeling is not a strong sense in fish because they do not have the nervous system of higher creatures. This does not mean they do not feel, but rather they do not have capabilities to feel sensitive touches except along the lateral line. While they can feel pain it is not strong.

I hope this gives you a better idea of what your fish are like. To keep and raise fish successfully you need to understand them too!



BEST OF SHOW
HALF BLACK RED TANK
JIM ALDERSON
PAN PACIFIC GUPPY ASSOCIATION SHOW
JULY 11 - 12, 1992
(Photograph Courtesy Of David Wexler)



FIRST PLACE
RED VEIL
GARY MOUSSEAU
PAN PACIFIC GUPPY ASSOCIATION SHOW
APRIL 24 - 25, 1993
(Photograph Courtesy Of David Wexler)



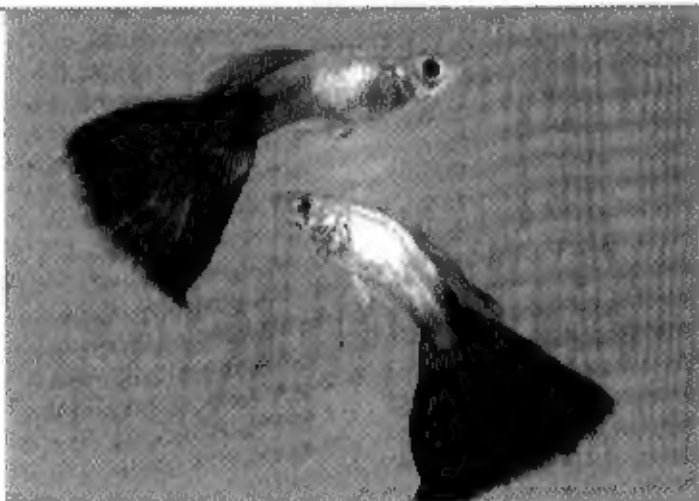
FIRST PLACE
HALF BLACK PASTEL
JIM MAIER
PAN PACIFIC GUPPY ASSOCIATION SHOW
JULY 11 - 12, 1992
(Photograph Courtesy Of David Wexler)

GUPPY CENTERFOLD

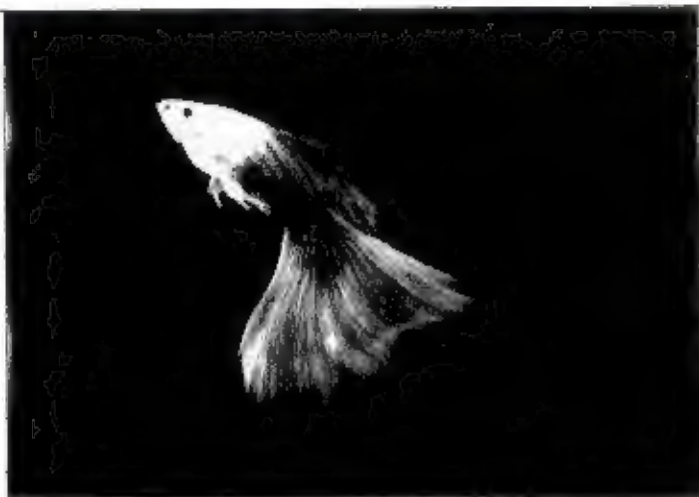
FIRST PLACE
RED BICOLOR DELTA
BRUCE JUNG
PAN PACIFIC GUPPY ASSOCIATION SHOW
APRIL 24 - 25, 1983
(Photograph Courtesy Of David Westler)



FIRST PLACE
GREEN TANK
JIM RUSSELL
PAN PACIFIC GUPPY ASSOCIATION SHOW
APRIL 24 - 25, 1983
(Photograph Courtesy Of David Westler)



FIRST PLACE
HALF BLACK BLUE DELTA
ANN RODRIGUEZ
PAN PACIFIC GUPPY ASSOCIATION SHOW
APRIL 24 - 25, 1983
(Photograph Courtesy Of David Westler)



GUPPY ROUNDTABLE

15

UNDERSTANDING FISH DISEASE AND TREATMENT

"Treating Disease In The Aquarium With Drugs Should Be Done With Great Caution"

By Steve Meyer
Reprinted With Permission
Aquarium Fish Magazine, June 1983

You may wake up one morning to find your fish sitting listlessly on the bottom of the aquarium. They are breathing rapidly and their colors are "off." Your immediate concern is to not lose the fish; you want to do something fast. With what is almost a reflex action among all fishkeepers, from hobbyist to trout farmer, you begin large-scale chemical warfare. Unfortunately, in most cases the situation is made worse, not better, by hastily dumping medications into the tank before the exact nature of the problem has been determined.

Although chemo-therapeutics, fish drugs, certainly play an important role in coping with fish disease, the use of these powerful chemicals should be the last step in the disease identification and treatment process. They can help your fish only if used judiciously and appropriately. Otherwise, they will merely hasten the death of the already diseased animals.

This article deals with what I call disease treatment systematics, and offers some basic information that fishkeepers should know before attempting to treat fish diseases. This article is not a substitute for the good fish disease reference books that are available (see the accompanying sidebar). Rather, its purpose is to make these books more useful to you.

SOURCES OF FISH DISEASE

The first thing you must do is determine the generic cause of the disease problem before taking

any action. This does not mean that you need a biology laboratory in your home. We are only interested in generic causes here. There are six generic sources of disease among aquarium animals: environment, bacteria, parasites, fungi, viruses and organic dysfunctions.

Environmental problems are perhaps the most common disease source in aquariums, but invariably they are misdiagnosed as some mysterious bacterial or parasitic problem. Environmental sources of fish disease include a wide variety of physical, chemical and biological factors that negatively affect fish health. Most obvious (if you test for them) are any characteristics indicative of poor water quality: high concentrations of ammonia or nitrite, low levels of dissolved oxygen, rapidly fluctuating water temperatures or improper pH.

There are also more subtle environmental effects, such as overcrowding, lighting that is too bright, nutritional and dietary deficiencies, improper physical layout in the tank, noise, human traffic or incompatible fish in a community tank. A fishkeeper must also be alert for toxic substances entering an aquarium (or pond) from the nearby environment, such as cigarette smoke, household insecticide sprays or contaminants from tap water. Many substances are toxic to fish when dissolved in water even at low concentrations measured in parts per million.

Bacteria represent the second most frequently encountered source of disease in aquarium and pond fish. Finrot and tailrot are familiar signs of external bacterial infections to

most hobbyists. Dropsy, in which the fish blows up like a football and scales stand out from the body as internal cavities fill with fluid, is a sign of internal infection that is a common problem. There are many different kinds of bacteria that infect fish, but the ones most often encountered with aquarium diseases seem to be of just a few types: pseudomonads, mycobacteria and flexibacter. These pathogenic bacteria are ubiquitous to the aquatic environment. They are present on fish and in the fish-rearing waters of our aquariums most of the time. In a sense, the fish are always infected to some degree. Disease, the uncontrolled growth and subsequent negative effects of these organisms, occurs when the fish become weakened and their immune systems are unable to contain the infection. Environmental problems play an important role in many bacterial diseases, a theme I will return to below.

Parasites are also common sources of disease among aquarium fish. There are many kinds of fish parasites, from the very small single-celled protozoa to large worms and crustacea. Most hobbyists are familiar with the external parasite *Ichthyophthirius multifiliis*, the ich parasite that is easily recognized by the salt-like white specks that erupt on the skin of infested fish. Pondkeepers may have encountered outbreaks of parasitic crustacea such as *Lernaea* spp. (anchor worms) and *Argulus* spp. fish lice on the skin, fins and gills of pond fish during the late spring and early summer. There are also a large number of internal parasites that can wreak havoc with a fish's internal organs and metabolic processes.

Here again, despite the large number of potential fish parasites, most parasite problems encountered by hobbyists tend to revolve around a few well-known types. Specific diagnosis of parasites is practical for the

(continued on page sixteen)

hobbyist, unlike the case for bacteria, because most parasites can be seen with just a light magnification and they are easily matched to photographs.

Fungi cause mycotic disease in fishes. One group of fungi feeds on dead tissue, and are really secondary pathogens. They appear where fish health problems already exist, attaching themselves to sites of dying or dead tissue where bacteria or parasites are doing the primary damage. Hobbyists commonly encounter dense cottony growths on the damaged skin and fins of fish that are characteristic of *Saprolegnia* spp. fungi. A second group of fungi acts as parasites, living off live tissues. These tend to be encountered less frequently in hobbyist aquariums and ponds.

Viruses account for only a small percentage of hobbyist fish disease problems, although here again there is a tendency to want to diagnose every "mysterious" death as a virus. The fact is that necropsies reveal

that very few aquarium fish die from viral infections. Of course, this may be due to the fact that environmental, bacterial and parasitic problems are so rampant in the hobby that viruses do not have a chance to do much damage. Because viral infections are rare, plus the fact there are no reliable treatments available, we can ignore them in our discussion.

Organic disease sources are related to biological process in the fish that go "haywire." Two examples are malformed organs (swimbladder defects in fancy goldfish) and genetically linked neoplastic (tumor) diseases.

ENVIRONMENT PATHOGEN DISEASE MODEL

A complete treatment regimen must include the elimination of the triggering conditions of disease, and should not be limited to efforts to suppress pathogenic organisms. Fish disease research over many years shows that healthy fish kept in a healthy environment tend to stay healthy. In other words, fish

immune systems are more than adequate to the task of fighting off disease when fish are kept under good rearing conditions. This is borne out by the fact that, as mentioned above, many of the more common pathogens of aquatic animals, bacteria, parasites and fungi, are present in the water and on the fish all the time. Healthy fish are able to keep these pathogens in check.

Problems arise, however, when environmental conditions begin to deteriorate and the fish become "stressed." Declining water quality and overcrowding are very common sources of environmentally induced stress in aquariums and ponds. Usually, a weak fish shows the first signs of trouble, exhibiting disease symptoms of one sort or another. Soon after, most, if not all, of the fish in the aquarium or pond become sick. This epidemic-like event is called an epizootic. Major disease outbreaks in aquariums and ponds, therefore, are usually due to the confluence of a serious breakdown in the aquatic

(continued on page seventeen)

DETERMINING EFFECTIVE DOSES

If you intend to use a commercial fish medication, it is important to match the delivered dose rate to the recognized therapeutic dose rate. This will ensure that the amount of active ingredient being delivered per treatment is sufficient to affect the pathogen.

Dosage information is conveyed in units of parts per million (ppm), milligrams of drug per liter of water (mg/L) or micrograms per milliliter (mcg/ml). These can all be used to indicate the same dosage. Thus, a therapeutic application of formalin to aquarium water to kill gillflukes may be given as 25 ppm, 25 mg/L or 25 mcg/ml.

The first piece of information you must determine is the delivered

dose rate recommended by the manufacturer. You must begin by finding the absolute quantity of active ingredient per pill, capsule, tablet, drop, etc. This should be figured in milligrams. For example, oxytetracycline antibacterial capsules might list 250 mg of active oxytetracycline per capsule. Tablets of rifurpirinol may list ten percent active ingredient in each 100-mg tablet, with the rest being inert ingredients. In the first example, there are 250 mg of active ingredient in the second, there are 10 mg. Obviously, if this information is not provided with the product, you should not use it.

Next, you must determine the dilution amount. Frequently, the instructions say to dissolve a given amount of medication per gallon or per ten gallons of water. Each gallon consists of 3.785 liters.

Therefore, you can multiply the gallon recommendation by 3.785. If the instructions indicate to dilute one capsule in ten gallons, that would be one capsule per 37.85 liters.

Last, divide the absolute quantity of the water it is to be dissolved in. If 250 mg of oxytetracycline is to be dissolved in ten gallons of water, then the effective dose rate will be 250 divided by 37.85, which equals 6.6 mg/L. If the 100-mg tablet of ten percent rifurpirinol is to be dissolved in ten gallons of water, the effective dose would be ten divided by 37.85, which equals 0.26 mg/L.

Once you have determined the manufacturer's recommended dose rate, you should then compare it with the recognized minimum therapeutic dose listed in reputable reference texts. You may be surprised at what you find. Adjust doses accordingly.

environment, the presence of one or more opportunistic pathogens and a susceptible host animal - your fish. This explains why several disease problems often occur simultaneously in the same tank, and why a tank that has been disease free for months can suddenly experience an epizootic. It also explains why disease outbreaks often coincide with the addition of new fish to an aquarium or pond - even if the new animals were quarantined. The change in the biological load and species balance in the aquatic environment stresses the old inhabitants and makes them vulnerable to ubiquitous pathogens. (Of course, new fish should always be quarantined in order to prevent the introduction of new pathogens.)

In short, unless the initial environmental trigger is eliminated, treatment of pathogens can have only temporary effects. Disease will return. Environmental problems should be corrected immediately.

THE TRUTH ABOUT FISH DRUGS

Chemo-therapeutics, fish drugs, are not universal cure-alls. They should be used only after being matched to the generic pathogen (i.e., bacteria, parasite, fungus). As anyone who has visited an aquarium store knows, there is no shortage of commercial chemo-therapeutics available for treating fish diseases. Most claim to cure the majority of fish diseases, and often mix antibacterials, parasiticides and fungicides together in weird concoctions. In truth, many fish drug products, as sold and used in the aquarium hobby, will not work.

There is no governmental authority that oversees the testing of fish drugs for effectiveness. Companies are free to market any products that are not explicitly banned for sale by the Federal Food and Drug Administration or the Environmental Protection Agency. There are many products available that have never

been tested in controlled laboratory studies. There is nothing to prevent a manufacturer from claiming that their product cures any disease they wish to list on the label, irrespective of the drug's true abilities. Even more unfortunate is the fact that some products are marketed even after laboratory tests clearly show they have no therapeutic value!

Unfortunately, some drugs sold to hobbyists are not effective against any pathogen known to infect typical aquarium or pond fish. For example, erythromycin is the main ingredient in several popular commercial antibacterial fish medications. Yet, controlled laboratory studies have shown that erythromycin does not kill, or even suppress, any fish disease causing bacteria the aquarist is ever likely to encounter. It is a drug primarily of interest to salmon farmers! (It is, however, a potent killer of the nitrifying bacteria that make your biological filter work for this reason, avoid the use of erythromycin-based medications.)

The use of inappropriate fish drugs also wastes valuable time. Treating your fish for some mysterious bacterial disease, when the real problem is nitrite poisoning, only means that the fish will die when a simple water change would have sufficed to save the animals.

It is advisable to use only those fish drug products that list the ingredients and corresponding concentrations per dose on the label. Many commercial fish medications do not list the ingredients or, if they do, they fail to list the effective

concentrations per dose. This means that you have no idea what drugs you are actually using, nor what dose rate you are applying. One popular commercial "antibacterial" product is composed almost completely of ordinary table salt! Check the actual applied dose carefully. Make sure that it is at the recognized minimum therapeutic level. Frequently, when the ingredients and concentrations of hobbyist fish drugs are listed, the manufacturer's recommended doses are usually just small fractions of the scientifically recognized therapeutic doses! (This appears to be more of a problem with antibacterial compounds than it is with parasiticides.) The amount of chemical used per treatment is too low to have any serious effect on the targeted pathogens. Typically, commercial doses are 1/5th to 1/100th the effective minimal therapeutic level. Fortunately, at least the drugs do not hurt the fish when used at such low doses. The result of all this is that if the animal recovers, the drug receives the credit, if it does not the disease is at fault.

If a product provides ingredient and concentration information, you can determine if it is seriously

(continued on page eighteen)

IFGA BULLETIN EXTRACTS



The Guppy Associates of Milwaukee proudly announce the first five volumes of the IFGA Extracts, combining the original articles, are now available.

The IFGA Extracts are a "must" for the serious guppy hobbyist. Each volume contains a wealth of information written by the country's top breeders.

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"under-dosing" the disease and you can compensate accordingly if you know the appropriate therapeutic levels. (The correct therapeutic levels are provided in the reference books described in the sidebar). Do not casually increase doses! (It is not a safe practice to double or quadruple a manufacturer's recommendation. Determining fish drug dose must be a careful and precise process. If it seems like too much trouble to do it correctly, do not use chemo-therapeutics).

I suggest great caution and skepticism toward products that involve multi-drug combinations. In almost all such cases (triple salts antibacterial products and malachite green-formalin parasiticides being the exceptions), there is no evidence that such combinations work together. Some

combinations have demonstrable stress and toxic effects on fish.

Fish drugs should never be used prophylactically. They should only be applied when there are specific indications of disease. The prophylactic use of fish drugs involves the intermittent use of chemo-therapeutics when no sign of disease is evident. Single-shot, subtherapeutic regimens are applied in the hope of preventing disease outbreaks. Some hobbyists do this routinely, for example, when hobbyists do this routinely, for example, when adding new fish. This practice serves no purpose and is potentially dangerous. Despite aquarists' and manufacturers' wishes, adding antibacterial chemo-therapeutics to fish-rearing waters intermittently does not significantly reduce pathogenic

bacterial counts in the water. Even when doses are adjusted to recognized therapeutic levels (and above), bacterial populations are only minimally suppressed and quickly rebound. The reason is that most antibacterial drugs act as bacteriostats, they merely inhibit growth but do not actually kill the bacteria. Thus, as the drug loses potency, the bacterial population rebounds.

Similar observations hold for parasiticides, although for a different reason. Most parasites go through a number of transitional life stages during their lifetimes. Most parasiticides work by targeting a specific stage of parasite development; they do not affect all life stages. For example, 1-trichlorfon based products kill the copepodid stages (continued on page nineteen)

FISH DISEASE REFERENCE BOOKS

There are literally dozens of books available to the hobbyist that have the words "fish" and "diseases" in their titles. Unfortunately, most are not worth even receiving as gifts. There are, however, two new books on fish diseases and treatments that should be on every fishkeeper's shelf.

The first is a new release by Tetra Press called *The Manual of Fish Health*, written by Christopher Andrews, Adrian Exell and Neville Carrington. If you own fish you should own this book. This is an incredibly well organized, well written and well illustrated book. What makes this guide particularly valuable is that the text is completely approachable by the hobbyist, yet the discussions are detailed, comprehensive and accurate. This book will certainly improve the accuracy of your disease diagnoses.

The first two chapters cover the basics of fish health and metabolism. The third chapter provides a solid discussion of water chemistry and how various characteristics - pH, hardness, etc. - affect fish health. The fourth chapter deals with preventive medicine; things you can do to minimize fish health problems. Taken together, chapters three and four should help hobbyists cut down on obvious mistakes.

The meat of the book is chapters five to seven, which cover elementary signs of disease (with excellent photographs and descriptions), individual descriptions of the most common aquarium and pond diseases and treatment procedures. Chapter five offers good guidelines for doing your own basic diagnostic work at home: taking scrapings, using the microscope, dissecting, etc. Chapter seven provides reliable information on therapeutic doses for common fish drugs.

The second book I would recommend is George Post's *Textbook of Fish Health*, published

by TFH Publications. This is a more advanced text. The descriptions of the diseases are clinically oriented and the text is well footnoted for those who wish to pursue the relevant literature.

This book will not be of much use to hobbyists wishing to begin diagnosis. Rather it is a great reference for those who want more information on tentative diagnosis. It also provides excellent references on alternative treatments for each disease and reliable information on therapeutic doses. Taken together, these two books offer the hobbyist, and the professional, a real chance to approach disease diagnosis and treatment in a systematic and serious way. These books are available in many aquarium stores or may be ordered from the two sources listed below.

Lewis Books
Post Office Box 41137
Cincinnati, Ohio 45241-1137

The Aquatic Book Shop
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Sacramento, California 95827-6484

of *Lernae* spp. (anchor worm) parasites; neither nauplii nor adults seem to be affected. Thus, in order to be effective, the drug of choice must be applied at the correct dose and in several sequential treatments in order to "catch" successive generations of the targeted life stages.

The efficacy of parasiticides is complicated by the fact that the amount of time that a parasite spends in a given life stage is a function of environmental factors, most importantly, water temperature. In the tropical aquarium this is not much of a concern, but in the coldwater aquarium or ornamental pond it means that a treatment regimen that is very effective at one time of the year may have little or no effect at other times of the year.

In fact, the prophylactic application of chemo-therapeutics can actually be quite harmful to long-term fish health. Bacteria and parasites can develop strong resistance to fish drugs following inappropriate use. This includes doses that are too low, treatment regimens that are too short, improperly timed applications and exposure to a drug used too frequently (unnecessarily). Most common aquarium bacteria, for example, are now quite resistant to tetracycline-based drugs.

Every time a chemo-therapeutic is used, all of the pathogens, bacteria and parasites that live in the treated waters are exposed. Thus, each time a fish drug is used, the risk increases that the drug will be less effective the next time it is used, even if used correctly.

It is also important to keep in mind that all fish drugs are toxic to fish. Fortunately, it usually takes a higher concentration of the drug to harm the fish than it does to harm the pathogen. Nevertheless, subtoxic doses for fish are still stressing, and repeated doses can build up to

toxic levels. Thus, no chemo-therapeutic should be used unless there is a specific need. The casual use of fish drugs can ultimately cause more harm than the disease one is trying to cure.

Once you have decided to use a given fish drug, the choice of administration technique - dip, long bath, medicated food, oral intubation or injection - should be matched to the drug being used and the nature of the disease. One of the reasons that antibacterial compounds are so widely misused in the aquarium hobby is the ease with which they can be applied: just pour the powder into the tank water. With few exceptions, however, these fish medications cannot be absorbed by the fish from their rearing waters. Although antibacterial and antiparasitic chemical baths can be useful for treating external problems, adding chemo-therapeutics to the tank water, even at the correct dose, will not treat internal problems, with just a few exceptions.

When internal infections are indicated, one of the few absorbable drugs should be used, medications should be mixed with food or the drug should be injected directly into the animal. Many hobbyist books offer useful instructions for preparing medicated foods, and it is important to use the correct dose.

CONCLUSION

The most bothersome aspect of the points I have raised here is that they run counter to conventional wisdom and practice in the fishkeeping hobby. They are, however, well known to fish health professionals. This article has tried to bridge that gap. In the second half of this article, I will suggest specific guidelines for carrying out disease treatment at home.

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CLUB ON A MISSION: The Pan Pacific Guppy Association is looking to purchase several classes of guppies not in our club: BRONZE, YELLOW, ALBINO SNAKESKIN, COYSE PATTERN, SNAKESKIN DELTA, GREEN DOUBLE SWORDTAILS or SNAKESKIN DOUBLE SWORDTAILS for sale, or trade please contact: Davidson Tall; 3619 Marlene Avenue, Los Angeles, California 90034 310 830-1134 (call collect)

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GUPPIES AND OXYGEN

by Midge Hill
Excerpts From Guppy Roundtable
January, 1978

This article will take a wider look at the pros and cons of a few findings about oxygen. We will start with an experiment by Robert Fisher on using pure oxygen in fry tanks, examine a few other aspects of oxygenation, and finally present a few warnings regarding too much oxygen.

In the July 1976 issue of *Ragged Tales*, Robert Fisher reported his experiment using gaseous oxygen in an attempt to give guppy fry a better start. In addition to his regular filtration system he added a slow trickle of oxygen to his fry tanks by means of a fine airstone. Large batches of fry were used so that the test tanks and the control tanks had an equal number of fish from the same batch. He rented a five foot cylinder of commercial oxygen and found he could run two simonies twenty-four hours a day for a month from the standard one hundred twenty foot cylinder.

The experiment was prompted by having heard many times that fry need oxygen to rapidly grow (he reports having tried hormones, but was unhappy about the resulting sterilization of good males). After four months of experimenting with the oxygen, he found that "the growth of the fry was influenced by oxygen, that they grew faster and larger in every case".

After just four weeks of super-oxygenation, some fry were at least one-third to one-half as big again as their natural siblings in the control. The maturation rate of the young males in the test tank was not affected, as it is with hormones, and after the four-week test no adverse effects occurred "other than the rapid buildup of slime bacteria on the inside walls of the tank, which gave the water

a gray appearance for a few days". There was no change in the vigorous habits and heavy appetite normal with this strain, and at four months of age the fish were still progressing nicely. While diet, temperature and selective breeding are still important, he feels that the use of oxygen will HELP rear good guppies. "Warm water will hold less dissolved oxygen than cold water, thus it follows that the higher temperature necessary for speeded-up growth can have adverse effects and result in oxygen starvation for a crowded tank, which can be remedied by the above process."

He also mentions an alternate method that is cheaper because it uses less gas: suspend a jar upside down over the water with the open mouth one-half inch below the surface. The jar is filled with pure one hundred percent oxygen which is gradually dissolved at the water surface. A fresh supply of oxygen is pumped into the jar weekly. Although this method conserves oxygen, he does not feel it does as good a job as the airstone method.

He also cautions that oxygen can and will support combustion: "Do not smoke or allow oily rags or grease in an oxygen-rich atmosphere. To do so is inviting disaster." He points out that although the gas is perfectly safe in the quantities recommended, it is better to recognize potential hazards before becoming victim to them.

He also recommends oxygen for shipping fish and transporting them to shows, as he has found his fish to be far more vigorous and colorful after a long trip when sealed with pure oxygen above the water and department was vastly improved. He passes along the results of his findings in the hopes that "others

will take up where I left off and conduct other worthwhile experiments."

The fact that he achieved good results with his experiments cannot be questioned, but in light of other articles on the subject, it is possible that the reasons WHY he obtained good results might be different than he surmised. Perhaps his super-expensive bubbles worked merely because they served to increase water circulation and thus the amount of water coming to the surface where most oxygenation takes place. He does not mention if the control tank had a comparable stream of bubbles of regular air. It was recently reported in the *International Fancy Guppy Association Bulletin* that a cloud of bubbles does NOT add oxygen, but merely agitates the water and stops stratification.

An article in *Tropical Fish Hobbyist* makes much the same point: "Artificial aeration is necessary in a crowded tank, and it works, but not the way most people think it does. The actual oxygenation takes place not in the entrapped bubbles of the air stream, but at the surface of the water. The air stream riding through the water creates a water current, bringing up heavily carbon dioxide laden water from the bottom, fanning out across the surface from the point of bubble emergence, exchanging oxygen for carbon dioxide, and back to the bottom of the tank carrying its precious cargo of oxygen. Thus the faster the air stream, the bigger and faster the water currents, the more water is exposed to the air above it, and the faster the oxygenation takes place."

This being the case, perhaps Robert Fisher's good results depended on two factors: an increase of oxygen at the water surface due to the rising bubbles of oxygen constantly bursting at the surface and an increased exposure of new water now being hoisted to the surface by the increased water circulation.

(continued on page twenty-one)

Would he have had just as good results using less of the expensive oxygen by filling his tanks with a lid increasing the oxygen content of the enclosed air space above the water, then circulating the water using only cheap air?

Elle Pittman, in the *Colorado Aquarist*, throws in a few more vital facts about oxygen. It is at the surface that water discharges waste gases and takes on the needed oxygen. Thus, in an aquarium with straight sides, it makes little difference if the aquarium is half full or completely full, because the surface area is the same. But even without aeration, a large volume of water has the capacity to store more oxygen than a smaller volume. Therefore, given the same water surface area, the same degree of aeration or filtration, a tank full of water will give twice the stored oxygen as a tank half full. This stored oxygen, when used, will only be replaced as fast as the surface area and aeration will allow. Cold water can absorb more oxygen than warm water. Fast moving fish use more oxygen than slow moving fish. Water that is loaded with waste gases cannot hold much oxygen. As most of these waste gases tend to stay at the bottom of the tank, filters and siphoning of the bottom remove this polluted water as well as waste solids.

On the other side of the coin, it is possible to cause problems by having too much oxygen. This state is seldom reached in the tank, but has been seen on show fish that are tightly sealed under pure oxygen. Under these conditions, a blistering effect can occur (Cassion's Disease).

Larry Hume in *Delta Tales* explains this "gas embolism" blistering. If a sudden change in oxygen concentration comes about, the chemicals in the blood of fishes that regulate the balance of pressure of gases in the water to the ones in the blood stream,

go haywire. The dissolved nitrogen in the blood of the fish is unable to leave the body quickly enough and starts to collect and form bubbles. These bubbles can make their way into small blood vessels and cause rupture or can cause blockages in the main blood vessels (embolisms) thus causing death. The bubbles can be seen as blisters in the head region, or can cause the eye to bulge similar to popeye, or can be seen under the skin of the more transparent fish. Bubbles can also occur in the fins and can be quite noticeable in the caudal of the guppy. If the disease has not progressed too far, the fish will recover if placed in a fresh aquarium.

Since the super-saturation of water with oxygen is affected by substantial changes in either pressure or temperature, it is most apt to occur when fish are shipped by plane. Even pressurized planes are usually pressurized only to about two-to-three thousand feet, a substantial change from sea level. It is difficult to imagine a shipment that does not go through a temperature change. Perhaps more experimentation is in order regarding the shipping of fish in

bags filled with pure oxygen, especially when there is not a large enough population within the bag to use up the extra oxygen.

At a recent International Fancy Guppy Association sanctioned bowl show, a fish that had been purchased at auction puzzled its new owner by showing a series of bubbles seemingly embedded throughout its tail, presumably these were due to having been shipped under oxygen, as the fish showed no other symptoms of disease and was quite lively. Once had the same symptoms occur in one of the albinos, had shipped to a show. I knew that bubbles were not present when the fish left my fish room, but they were quite obvious when the returned fish was unbagged. I did not at the time think of inquiring as to whether the fish had been bagged with oxygen for the return trip. Fortunately the bubbles disappeared within twenty-four hours.

I am sure all of us could benefit by any experimental work done in the use of oxygen by anyone who would like to look still wider into this vital subject.



MESSAGE FROM THE PRESIDENT

By Jim Alderson, D.V.M., President
International Fancy Guppy Association
Pan Pacific Guppy Association

I hope everyone spent some extra time in the fishroom over the holidays always enjoy Christmas inasmuch as it gives me a chance to set up breeders for the second half of the show season.

During the next year I would like to see the IFGA focus on getting some more audio visual aids that could be distributed to the clubs and programs that could be shown at the shows. Slides of fishrooms and other guppy raising techniques could be put together and rented or loaned to the various clubs. This has been discussed at previous meetings but never acted on by an individual or by a club.

Other areas that would significantly improve our exposure are media coverage and support from manufacturers. We need

members who are willing to take on a small part of these ideas and pursue them. If you have any new suggestions regarding increasing our membership and are willing to help implement them please write me a note.

The shows will be here before you expect them. Let's increase our participation and support all the shows with a minimum number of entries. I do see more clubs taking an active participation in trying to get new members to show by providing them with fish that will make them competitive the following show year. The Pan Pacific Guppy Association has tried to provide several new members with adequate numbers of fish to make them competitive in particular classes. The New England club has done this as well. It really does generate enthusiasm.

Until next month

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SAD FAREWELL TO A FRIEND

The Columbus Ohio Guppy Specialists regret to inform the readership of *Guppy Roundtable* that BOB WILLIAMS passed away on Tuesday November 23, 1993 after a battle with cancer. Bob had been an active member of the Columbus guppy club for over twenty years including serving as club president. Bob always looked forward to going to International Fancy Guppy Association bowl shows and always asked about IFGA members when unable to personally attend a show.

Bob will be sadly missed by family and friends.

MESSAGE FROM THE EDITOR

Guppy Roundtable is intended to be the official mechanism for publishing show results from recent International Fancy Guppy Association sanctioned shows and the accumulation of show points. In order to make this possible, the Committee Chairpersons, Show Chairpersons and Officers must forward accumulative point totals, show information, show results, minutes, messages and announcements to the editor in a timely manner.

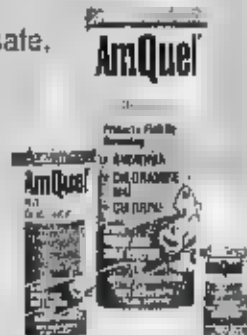
Unfortunately at the time of publication this month December 20, 1993, no results have been received for the Annual Show, minutes from the Annual Meeting, or accumulative point totals. In the event this information is received by the editor prior to February 1, 1994, it will be included in the March 1994 issue of *Guppy Roundtable*.

The deadline for receipt of information is the first day of each month. Information received after the publication deadline will be published the following month.

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SHOW SCHEDULE

SECOND HALF 1993-1994 SHOW SEASON

SOUTH JERSEY GUPPY ASSOCIATION
SHOW DATES
April 9 - 10, 1994
RULES DUE DATE
February 1, 1994

HEARTLAND GUPPY CLUB
SHOW DATES
April 30 - May 1, 1994
RULES DUE DATE
February 1, 1994

GATEWAY GUPPY ASSOCIATES
SHOW DATES
May 21 - 22, 1994
RULES DUE DATE
March 1, 1994

COLUMBUS OHIO GUPPY SPECIALISTS
SHOW DATES
June 25 - 26, 1994
RULES DUE DATE
April 1, 1994

FIRST HALF 1994 - 1995 SHOW SEASON

EAST COAST GUPPY ASSOCIATION
SHOW DATES
July 16 - 17, 1994
RULES DUE DATE
May 1, 1994

PAN PACIFIC GUPPY ASSOCIATION
SHOW DATES
August 5 - 7, 1994
RULES DUE DATE
June 1, 1994

NEW ENGLAND FANCY GUPPY ASSOCIATION
SHOW DATES
August 27 - 28, 1994
RULES DUE DATE
June 1, 1994

GUPPY ASSOCIATES INTERNATIONAL OF CHICAGO
SHOW DATES
September 7 - 10, 1994
RULES DUE DATE
July 1, 1994

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August 1, 1994

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THE SEARCH CONTINUES

By: Davidene Tail
Pan Pacific Guppy Association

The Pan Pacific Guppy Association's aggressive pursuit of new members recently added four guppy enthusiasts to our club. It is with great pleasure, in behalf of the constituency of the PPGA, I welcome Lee Bell, A. Hopcus, Brent Kashiwagi, and Jack Probyn to our association.

Our goal, to significantly increase membership to our society is motivated by our commitment to furthering the advancement, enjoyment, knowledge and pleasure of breeding fancy guppies. The PPGA currently boasts almost seventy members residing throughout the Southern California area. To enable us to continue vigorously promoting our club, we would appreciate ideas from club members regarding courses of action that should be implemented to accomplish our lofty goal. Coupled with your suggestions, volunteer your energies to further our objectives.

This is YOUR club and its continued growth and success hinges on your support.

A special note of appreciation is extended to Elaine Poy who graciously accepted her nomination of Publicity Director for the Pan Pacific Guppy Association. With her enthusiastic support, our goals of aggressively promoting our association and newsletter in various magazines, newspapers, and tropical fish stores will be better served.

Although *Guppy Roundtable* was recently designated as the official monthly publication of the International Fancy Guppy Association, our club has retained publication credit. Now, more than ever, articles penned by members of our organization are sorely needed. Your experiences (humorous and serious) will enable *Guppy Roundtable* to continue as the definitive source of information for serious breeders of fancy guppies. You do not need to be a perfect writer, that is why there are editors.

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Fortunately for our club members, and their little wet pets, no one within our organization is suffering the devastating effects of the dreaded "clamping disease" and "wasting disease" currently running rampant through several breeders' laboratories across the country.

Additional discussions were conducted concerning our club's annual International Fancy Guppy Association sanctioned bowl show. Everyone readily agreed we should begin making plans for the show NOW. Show assignments will be delegated at our next club meeting on Sunday, January 9, 1994. Please make plans to join us and to eagerly volunteer your assistance with various show-related duties.

OH, WHAT A FEAST!

By: Davidene Tail
Newsletter Editor/Publisher
Pan Pacific Guppy Association

The annual potluck dinner and meeting of the Pan Pacific Guppy Association graciously hosted by David Wexler the evening of December 10, 1993, proved to be a gastronomic delight for all in attendance. Club members dazzled us with their culinary skills by sharing their specialty dishes of chicken chow mein, eggplant parmesan, egg roll, fried shrimp, quiche, and vegetable chop suey.

Even more surprising, several members enchanted us with delicious baked goods (lemon meringue pies, chocolate cakes, cheesecakes) that put to rest the rumor that they were single dimensional individuals who could do little more than breed terrific guppies. At the conclusion of the meeting, nary a tasty morsel remained from this bountiful repast.

Coupled with this feast, Jim Alderson conducted stimulating discussions concerning disease pathogens (bacterial, fungal, protozoan), nematode infestation, and effective methods of treatment.

STARTING UP WITH GUPPIES

By: Jim Alderson, D.V.M., President
International Fancy Guppy Association
Pan Pacific Guppy Association

If you attend a Pan Pacific Guppy Association monthly meeting you are likely to end up with a trio of show quality guppies. How well you do with them will depend largely on how well you take care of them, feed them, and manage your breeding program.

Initially, you must have enough tank space to accommodate the unborn guppy fry. Put the adult breeders in a 2 1/2 or 5 gallon tank. When the females are ready to drop, carefully transfer them to a five gallon tank with some media for the fry to hide in. Most of us use the tuffi scrubbies (Chore Girl) that have been unraveled. These can be had at any grocery store. Several breeders in the club swear that plastic or live plants are equally effective.

After the female drops the fry, carefully return her to the breeding tank as soon as possible.

Feed the fry live baby brine shrimp a minimum of three times a day for the first month. This is the most important growth period in the fishes life. If you stunt them in the first three weeks, they will never grow to their full potential.

You can have live baby brine shrimp available all the time by putting the clean live hatched shrimp in some fresh salt water and gently bubbling it. Even if you only hatch shrimp once daily, you can save some, keep it alive, and feed it to the fry whenever you want. Please note that the nutritional value of the shrimp declines as they get older.

When the fry are approximately four-to-six weeks old, it is easy for most hobbyists to separate the sexes.

Move the males to a fifteen or twenty gallon tank. Pick the largest six-to-ten females and move them back to a five gallon tank. Mark the tanks with the birth date, the location of, their siblings, and which of the two original females had them (most people use "A" and "B"). Detailed record keeping is of paramount importance if you are to maintain an accurate line breeding regimen.

MONTHLY BOWL SHOW RESULTS

Results of the Pan Pacific Guppy Association monthly bowl show for December 1993 were as follows.

MALE

1. Craig Smith - Half-Black Blue
2. Elaine Poy - Blue
3. Davidene Tail - Blue
4. Craig Smith - Purple

FEMALE

1. Davidene Tail - Blue

PAN PACIFIC GUPPY ASSOCIATION MEETING SCHEDULE

JANUARY 9, 1994 - 2:00PM
West Covina Lanes: Banquet Rooms
875 South Glendora Avenue
West Covina, California 91789
818 960-3636

FEBRUARY 13, 1994 - 2:00PM
West Covina Lanes: Banquet Rooms
875 South Glendora Avenue
West Covina, California 91789
818 960-3636

DIRECTIONS: Santa Monica Freeway East (10) to San Bernardino Freeway (10) to Vincent Avenue exit (first off ramp). Turn right off freeway off ramp onto Vincent Avenue. Vincent Avenue to Glendora Avenue and turn right into parking lot of West Covina Lanes.



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GUPPY ROUNDTABLE

THE OFFICIAL MONTHLY PUBLICATION OF THE

INTERNATIONAL FANCY GUPPY ASSOCIATION

VOLUME 1 ISSUE VIII

PUBLISHED BY THE PAN PACIFIC GUPPY ASSOCIATION

MARCH 1994

MY FIRST FISH ROOM

By Stephen Kwartler
Bronx Guppy Club
East Coast Guppy Association
South Jersey Guppy Group

After getting started with my new guppies, Half-Black Yellows, I knew I would soon be needing more tanks. I was engaged to be married and my fiancée and I were busy apartment hunting. I convinced her we would need an extra room so I could set up all my tanks.

I had recently visited another local guppy breeder named Mike Melia who was also a member of The Bronx Aquarium Society. He had a very large basement with over one hundred tanks. He showed me his blue line of guppies and mentioned they came from a breeder in New Jersey named Mike Regent. I remember reading an article about Mr. Regent in an aquarium magazine. These blues were all identical. All the males were big bodied and the color was beautiful. He also showed me his Reds and his Half-Black Reds. I remember that the Half-Black Reds were really red in color. Before I would leave I purchased some of the Half-Black Reds.

Well, my fiancée and I, finally settled on an apartment which had an extra room off the kitchen that would be perfect for a fish

room. Mike Melia's fish room

room. My brother and I spent the next several weeks setting up the racks and running air tubing before even began to decorate the rest of the apartment. When we finished the room I had about sixty tanks, my first fish room.

Soon my Half-Black Yellows made way to the new Half-Black Reds. My entire fish room was filled with Half-Black Reds. Although I had some decent guppies, I was unaware of all the secrets that the guppy breeders kept. I had no problems breeding my guppies, but they never grew to be as beautiful as the fish I saw

It would be a few years before I would attend another fish show. I was content breeding my guppies my own way believing I knew what I was doing. Eventually my wife and I purchased our own home and in time I built my second fish room. I had purchased about a hundred used stainless steel tanks from a killfish breeder. Most of these tanks leaked and I was always sealing the tanks with hot tar.

When I finished the fish room I had about one hundred tanks. I had about thirty twenty-gallon tanks, twenty twenty-gallon tanks,

(continued on page 11)

GUPPY GAMBITS

By Mark F. Sabal

Since I first started raising guppies, I have had covers on my tanks, aquarium hoods, glass, or plastic mesh. I began the practice thirty years ago because the fish kept jumping out onto the floor. Oh sure, you say, just lower the water level in the tanks. Fine, unless you use the cheap individual tank heaters that require water to a certain level.

However, with the invention of submersible heaters, it is worth the expense and effort to lower the

water levels. Not only is it less of a bother for weekly clean up chores, but Ethel Shuber suggested to me that bacteria can cling to the top of an aquarium and constantly drip back into the tank. How right she was.

I conducted an experiment in which I let the glass top rest on a tank without cleaning it. Not only did it get real slimy, but I saw it drip this greasy film into the tank water. You guessed it, that tank's inhabitants (luckily my culls) all became sick. So, I chloroxed them and chalked up another hard lesson learned.

INSIDE THIS ISSUE

4

COLON IN WILD GUPPIES

By John Callahan

Learn why water in wild trade guppies debates breeding and food choices in wild female guppies

6

GUPPY PEP TALK

By T. L. L. L. L.

Learn how guppies in a "Guppy Network" started the guppy show in the guppy world

8

FISH DISEASE AND TREATMENT: PART TWO

By Steve Meyer

Learn why using medications should be the last step in the treatment process

15

GUPPY CENTERFOLD

Photographs courtesy of David Weller

You asked for it, we got it! This month's edition of "Guppy Centerfold"

17

BITTEN BY THE "GUPPY BUG"

By Robert McCreary

Sampling ways of the breeders the long distance and finished with raising baby guppies

18

SOME GUPPIES I HAVE KNOWN

By Jim Anderson, D.V.M.

Detailed information on history of several diseases of fish currently shown on the show bench

20

MESSAGE FROM THE PRESIDENT

By Jim Anderson, D.V.M.

The second half of the current show bench is rapidly approaching, are your fish ready?

21

MINUTES OF ANNUAL MEETING

By Russ McCreary

Minutes of last year's Annual Meeting of International Fancy Guppy Association delegates

24

SHOW RESULTS

By Frank Harris

Official results from Guppy Association International of Chicago show November 5 - 7, 1983

26

ACCUMULATIVE POINT TOTALS

By Rudy Marshburn

Accumulative point totals for the current show bench as of January 10, 1984

28

ROMA JERREY GUPPY GROUP SHOW INFORMATION

By Stephen Kessler

Detailed information regarding first show of second half of current show bench

29

HEARTLAND GUPPY CLUB SHOW INFORMATION

By Gail Ryan

Detailed information regarding second show of second half of current show bench

30

EARTHQUAKE + GUPPIES = DISASTER!!

By Davidence Tait

A scary saga of the earthquake devastating effects on the bimodal bred guppies

32

SYNOPSIS OF FEBRUARY MEETING

By Davidence Tait

A detailed analysis of IFGA judging standards was held and of the information passed meeting

33

BEGINNER GUPPIES

By Bruce Jung

Overview of many joys and frequent anguish experienced by breeders with first tie of guppies

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The Guppy Roundable is published monthly
except January by
Pan Pacific Guppy Association
Business Office located at
11003 Culver Boulevard
Culver City, California 90230

Subscription is \$2.00 per year for eleven
issues. Payment is pending at Culver City, California

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official monthly publication of the International
Fancy Guppy Association published by the Pan
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For subscription information contact
Pan Pacific Guppy Association
3815 Melrose Avenue S.
Los Angeles, California 90034-5643
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Subscriptions are \$2.00 per year for eleven
issues. Payment is pending at Culver City, California
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twenty fifteen-gallon tanks, forty
ten-gallon tanks and an assortment
of five and ten gallon tanks. I now
had plenty of space to begin to
breed my Half-Black Red strain

Beside the one from Mike Melis,
I picked up some other Half-Black
Reds from the local pet shop.
crossed the two lines in an
attempt to develop a better
strain. Eventually my entire fish
room was filled with Half-Black
Reds

I had heard there was going to be
an all species tropical fish show in
Queens the following weekend and
I knew I had to attend. Well, the
weekend finally came for the fish
show. This time was a little more
prepared of what to expect. The
room was filled with tanks as well
as small bowls. There was also
a section for decorated aquariums
of all sizes and they were all
breathtaking.

I walked over to where the guppies
were and began to examine them.
They were of all different colors
and sizes. Some were much
better than others and I knew my
fish back home were somewhere
in the middle. I started a
conversation with one of the

breeders who introduced himself as
Vic Pileo of The Ocean Eleven Fish
Hatchery. He even gave me his
business card.

Here was, a complete novice
talking to probably one of the greatest
guppy breeders in the world. Vic took
the time to explain many aspects of
guppy raising. He even told me that
if I wanted to, I could visit his fish
room.

Vic was very honest and kept no
secrets. He had plenty of patience
because I am sure he spent almost
one hour answering my questions.
Today he is as dear a friend as they
come and still probably one of the
best breeders of guppies on this
planet.

But the real turning point for me was
meeting Frank Shulerbrandt. While
walking around looking over some
guppies, this voice said "Interested
in guppies?" I turned around and
met Frank. From that day on we
have remained best friends.

I guess you could say he took me
under his wing so to speak. I told
him I had over one hundred tanks at
home and invited him to my house.
I told him I was breeding my own
strain of Half-Black Reds, and

Frank could not wait to see them.
We left the show together and went
to my house. At first Frank was
impressed with the fish room, but
the more he examined my stock
the more he shook his head. He
came right out and told me he
thought that I knew how to keep
guppies but that I had no idea
what show quality was.

He told me as gently as he could
that my Half-Black Reds were junk.
The color was terrible, the dorsal and
caudal did not match and all the
males had specks of black in their
sides. Gee, I thought they were pretty
good boys. Was I wasting my time?

Frank began to tell me all about
the International Fancy Guppy
Association, and all about the
different color classes. He told
me he belonged to a guppy club
in New Jersey and that they were
having their annual guppy auction in
a few weeks. He asked me if I would
like to go with him. Boy, was I
fired up. All this time breeding my
guppies only to be told to flush
them. But I was convinced that
this time would start off with
only the best quality guppies.

NEXT MONTH: My First Guppy
Auction



Submitted by: Lee Flinders

"Good grief! What did you eat for dinner?"

ATTENTION PHOTO BUFFS

Searching for anyone with Black and White or Color photographs of
fancy guppies they would enjoy sharing with subscribers in the new
monthly "GUPPY CENTERFOLD" feature of the Guppy Roundable.
Photographs may include pictures of award winning specimens at
International Fancy Guppy Association sponsored shows or
photographs of fish in fishroom setups.

All photographs will be returned to handler upon request, otherwise they
will become the property of the Pan Pacific Guppy Association. All
photographer submissions will be credited in the Guppy Roundable.

PLEASE FORWARD ORIGINAL PHOTOGRAPHS TO:

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Pan Pacific Guppy Association
3610 Melrose Avenue
Los Angeles, California 90034

COLOR IN WILD GUPPIES

By John Caldwell
Pan Pacific Guppy Association
Corresponding Member

The Experiment

In the mountain streams of Trinidad the appearance of male guppies between populations is highly variable, differing from one stream population to the next.

Generally, the color patterns on wild male guppies appear as a beautiful mosaic of colorful spots and patches of various sizes, intensities, colors and shapes. Why do wild guppies at one location have different coloration than guppies in another location? What are the natural selection pressures that create these patterns?

John Endler conducted an experiment reported in *Evolution* in 1980 that found evidence that female guppies' choice of mates, in addition to predators, influence the character of future generations. It appears that female guppies prefer more colorful males.

Guppies were obtained from eleven streams in Trinidad and Venezuela that had various degrees and types of guppy predation. The guppies were allowed to crossbreed for approximately twenty-two weeks to obtain a very broad genetic pool. Ten ponds were constructed specifically for the experiment, lined with gravel of various colors and had a circulation and sand filtration system. Thus, it tried to mimic the natural stream conditions of guppies in Trinidad.

Each pond was stocked with two hundred guppies and again allowed to breed freely. Predatory fish were added to some ponds six months after the start of the guppy breeding. *Goniichia* spp. (Cichlidae), a dangerous guppy predator, was added to four ponds and the relatively innocuous *Rivulus marmoratus* (Cyprinodontidae) fish was added to four ponds. Two ponds contained absolutely no predators.

Approximately fourteen months after the predators were added, the ponds were drained and the guppy males scored on several visual characteristics, including number and size of dots and color patches.

The Results

Where predators use vision to locate prey, one might expect a more colorful guppy to be easier prey. The ponds containing the predatory cichlids did indeed show substantially fewer spots supporting this hypothesis. Not very surprising. However, the most interesting results were in the ponds that had no predators. It might be expected that the guppies in the ponds with no predators would resemble the population at the start of the experiment, as the fish mate freely. Surprisingly, they did not.

The fish from ponds that contained no predators had approximately one third more spots and patches of color than the initial population. Why? Endler speculates that brighter colored males, in addition to being more visible to a female, may indicate to a female that they are able to find the best food. Males with more brilliant colors may appear to be in a fit and healthy, having found sufficient food to enhance their color. Some colors in guppies are dependent on the carotenoids taken in the diet and can brighten a fish's color when food is abundant and fade when the guppy's diet is poor.

A later experiment demonstrated that guppy females do indeed have a preference for orange colored males, a color that is enhanced by carotene in the guppy's diet. Some

(continued on page 5)

colors on guppies are definitely not affected by diet, but Endler hypothesizes that brighter colors in general may mimic the effect of a better diet, thus improving a male's chance of mating. Thus, a male guppy's coloration may reflect the influence of two competing influences:

1. Male selection by females increasing color in the gene pool and
2. Predation decreasing color in the gene pool.

According to Endler, it has been conclusively proven that the least dangerous places for wild guppies to live, in terms of predators, are at the headwaters of streams. That is, indeed, where the most color and highest degree of diversity exists in the appearance of wild male guppies. As the genes flow downstream from low to high predation, the guppy types that inhabit the water are less conspicuous with the gravel, rocks and sand. In essence, predatory pressures have a proportionately greater influence over selection by females farther downstream.

In the headwaters of Trinidad guppy streams undisturbed by man, the forest canopy in the guppy's environment ranges from approximately 50% to 100%, casting much shade and reducing the opportunity for algae and plant life to develop. The background colors of the stream beds change from multi-colored gravel with little or no algae in the headwaters to a simpler background of sand, mud with abundant algae in the lowlands.

Several well-documented factors suggest why male guppies show so much diversity in their color even in one location:

First, they live in a visually complex background where

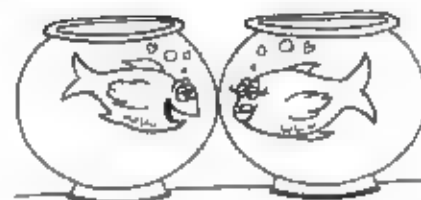
no single color pattern is necessarily the best and with no genetic selection of one particular pattern. There is also strong evidence from other research that females definitely show a preference for brightly or unusually colored males.

Secondly, since there is little probability of confusion with other species, a uniform pattern has little or no adaptive value.

Thirdly, color variability may also make it harder for a visually hunting predator to form a search image of a particular pattern. Diversity in color may also allow the guppy to adapt to predatory pressures in a wider variety of environments.

Reference:

Endler, John A. 1980. Natural Selection on Color Patterns in *Poecilia reticulata*. *Evolution*, Volume 34, 76-91.



Submitted by Nick Jisau

"Your bowl or mine?"



Submitted by John Clay

Tired of Being an "Also-Ran"?

Curious why your guppies are perennially judged as an "also-ran" in bowl show competitions? Feeling overwhelmed when muddling your way through the complexities of guppy genetics? Curious about the latest techniques, technology and trends of breeding fancy guppies??? Totally befuddled over what to feed your guppies to ensure optimal growth potential??? Submit your questions for thought provoking answers by Paul Gorski, Judging Board Chairman and Stan Shubel, Former Judging Board Chairman in the *Some of This, Some of That* column of Guppy Roundtable.

Please forward questions for personal reply in care of:

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GUPPY PEP TALK

(NETWORKING: INNOVATIVE WAY TO KEEP INTEREST IN THE HOBBY PIQUED)

By Elaine Poy
Publicity Director
Pan Pacific Guppy Association

If you are a corresponding member of a guppy club or if you have not been attending meetings or showing for a few seasons you can probably benefit from input from fellow guppy breeders about how

Do you have a few tanks of guppies? How many tanks of these living gems do you have hidden away in your garage? Can you honestly say how you are doing as a breeder or how your fish measure up to the FGA standards?

It is difficult to succeed on your own. You can not exactly walk

down the street and talk guppies. It is not like talking about current events or sports and this can be frustrating. You do not really have anyone you can talk to. Your spouse may not be genuinely interested and your friends can not relate. Feeling isolated does not help. Before you withdraw some more, how about a story and some pointers?

In 1990 I lived in Berkeley, California. I kept a few tanks of pet store guppies and attended college on the side. My interest in guppies had really grown so when disease eventually wiped out my fish, I hunted down an IFGA breeder and laid down the most money I had ever laid down for three small, but young, fish. I honestly thought I'd been had

Surely the fish would die without leaving any progeny and I would have thrown away my money. Disease did eventually take them, but not before they generated hundreds of babies.

Before this, I had become interested in finding other people to discuss guppies with at the time mainly to try and save my failing breeding program. I learned that the nearest club was 450 miles away. I was extremely disappointed, but decided to become a corresponding member while trying to start my own club.

Armed with my new knowledge, I obtained another trio of small, young fish and more tanks. I got a little breeding program going, and I carefully selected my breeders, molding my fish. After three generations my fish exhibited argol size than ever before. I began to think my fish were ready to compete in those bowl shows the

(continued on page seven)

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PLEASE FORWARD ILLUSTRATIONS TO

Davidene Tait
Pan Pacific Guppy Association
38 S Montrose Avenue
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showing and winning, and this can only help build your enthusiasm

Lastly, get yourself out to a few meetings or shows every now and then. It is an investment in time and gas, but it will yield great dividends. You will make new friends, catch up with your old friends, and learn things you might not have learned on your own.

experienced breeders participated in. Never one to assume MY fish could actually win, without seeing the competition, I attended my first bowl show.

That individual there I thought already knew after reading about their achievements in the bulletins. What I saw there dazzled me, but also put my grand schemes about my fish in their proper perspective. I was ready to show. My fish definitely looked different from others of the same variety at the show, but they would have been no less impressive than the others. I thought, After breeding them on my own with only a few pictures and a copy of the judging standards in my possession, I managed to do a new look on Blue/Green Bicolors.

Since then, I have totally shocked myself. The first time I showed one of my entries placed and received a third place BOE award for a tank entry that I thought was just "OK, but nothing special!" What did I know?

I ended up moving to the region served by the club. Looking back, reading those bulletins really helped me. I learned about hatching brine shrimp and who did what, but I remember how left-out I felt and how the support of a club would have really eased my frustrations.

I know how committed you have to be to raise guppies successfully to just keep them alive. Guppy breeding is a very challenging hobby and things get pretty tough at times, so seek others. Find a community of excellence. A guppy club in this community your hobby will make a meteoric rise from all the tips others will share with you. There are members in the club that know where you can get discount supplies and know lots of tricks and a lot about gadgets. Just last month I learned of a way to change water in my apartment guppy setup that has given me more time to appreciate my fish and write articles. If you have been breeding guppies a while you probably have

something to contribute.

Network! Get on the phone and introduce yourself to breeders in other states maybe a person who raises purple like you do. You will need an outcross someday as well as and you probably do not want to

wait until the time comes. A club contact can be very helpful in identifying who you want to talk to in my desperate hours, good people in the hobby have provided advice and fish. These people have been very supportive and steered me in the right direction many times.

Show your fish. It is too easy to think your fish are not good enough,

but you really can not know how your fish measure up unless they compete against others. I assume it is also easy to think that there is no longer any point in showing your little works of art anymore if you have won all the awards. Some new lines may have been developed since, and they could provide a good challenge. There truly is gratification in

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FISH DISEASE AND TREATMENT:

PART TWO

"Using medications should definitely be the last step in the treatment process"

By Stephen M. Meyer
Reprinted With Permission
Aquarium Fish Magazine, July 1988

In the first part of this two-part series, I tried to reduce the gap between what professionals know and what hobbyists believe about coping with fish disease problems. The bottom line was very clear: the use of drugs should be the last step in the treatment process — not the first step — and it should be done cautiously and knowledgeably. In part two of this article, I want to suggest a simple, but systematic, approach to disease treatment that believe will improve your success rate.

The fundamental law of fish disease is that problems are always first observed on Saturday nights or holiday eves just after the stores have closed. A corollary is that in almost every case when you can find an open aquarium store at the last minute, it will not be stocked with the supplies you really need. Thus, the prudent fishkeeper must prepare for problems ahead of time.

First and foremost, as a fishkeeper you must know the environmental requirements of the fish you are raising. Although most fish will tolerate considerable variations in environmental parameters, they will thrive only within more restrictive limits. For example, goldfish can

live in waters with pH values between 6.5 and 10.0. Growth, reproduction and general health, however, are better if the pH is kept between 6.5 and 7.5.

It is also important to have on hand all of the tools and test kits necessary to check the water quality against those care requirements. Water quality parameters that should be monitored include temperature, pH, hardness, ammonia, nitrite and dissolved oxygen. If your tap water is chlorinated, then a chlorine test kit is a worthwhile investment.

You should keep accurate weekly records of these water quality characteristics. This may sound like a waste of time — and many fishkeepers refuse to do it — but this information is essential to informed and reliable disease diagnosis and treatment.

Beginning aquarists should follow the practice of experienced hobbyists and have a hospital tank ready to accept patients at a moment's notice. Treating fish in the main tank is the worst possible situation. The hospital tank allows you to lightly control water quality. It provides the best possible observation conditions. It eliminates any disruption of the main tank's operation and it permits more effective treatment. The basic hospital tank setup is described in the sidebar entitled "Hospital Tanks." (see sidebar)

Having some basic tools on hand ahead of time will make it much easier to cope with fish emergencies. Items to stock include fish nets of various sizes, a water siphon, plastic bowls in several sizes, several five-gallon buckets, ten feet of extra air line tubing, a spare high-capacity air pump, filter media for the power filter (if applicable), a supply of granular activated carbon (GAC), a kitchen gram scale and a magnifying glass. Pond owners should also keep on hand one or

(continued on page nine)

BEST QUALITY BRINE SHRIMP EGGS

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if you do not know the relevant information for the species of fish you are keeping, buy books that provide the specific information that you need. For example

more spare submersible pumps, several venturi (spa) aerating jets, a couple of sixteen-gallon utility tubs and one or more clear thirty-gallon plastic garbage pails.

You should also have some basic water conditioning agents on hand. I recommend that the following be kept in stock at all times: chlorine bleach, a dechlorinating agent, an ammonia-removing agent, a synthetic fish "slime coating" product, a large supply of ordinary salt and a box of sodium bicarbonate (pure baking soda).

Perhaps the most important aspect of preparing for eventual disease problems is to take time regularly to observe your fish while they are healthy. Too often, aquarists and pondkeepers only begin to study the behavior of their fish carefully after a suspected disease problem appears. Then, all kinds of "funny things" are observed, most of which are quite normal but that went unnoticed due to a lack of attention. This can only confuse diagnosis and treatment. For example, the

breathing rates of many fish increase markedly in the hour or so after a heavy feeding. This is a normal response to the higher oxygen demand required to support digestion. It can, however, be quite alarming to the fishkeeper who first notices it in the course of discovering ich parasites on his or her favorite fish.

AN OUTLINE FOR TREATMENT

Suppose that you wander over to your tank after dinner and in the course of preparing to feed the fish you notice that one or more fish appear to be or are in fact behaving oddly. What should you do? The outline offered below is a guideline for coping with this problem in a systematic way. Many experienced aquarists will have their own variations of this treatment outline. My goal is not to set a firm regimen for everyone to follow, but to show how systematizing your approach can improve disease treatment success.

Take a deep breath, relax and

take out your notebook. Observe the fish carefully, noting both appearance and behavior. What looks odd? (You will, of course, not be able to answer this if you rarely spend time observing your fish.) Are there spots, lumps, discolored areas or coatings on the skin? Are any of the fins damaged? Is there anything unusual about the way the fish moves? How does the fish look when it is not moving? Write everything down.

Next, test every characteristic of the water. Measurements for temperature, pH, ammonia and nitrite are essential, and those for nitrate hardness and dissolved oxygen can be very helpful. Write the results in your notebook. If you do not have a dissolved oxygen test kit, try this simple test. Set up the spare air pump and run three large airstones from it. Place the airstones about halfway down into the tank and turn on the pump. Observe the fish intermittently over the course of several hours. If all of the other water quality characteristics check out fine and there is a noticeable improvement in the condition and behavior of the fish, then slow

(continued on page ten)

HOSPITAL TANKS

A standard ten-gallon tank is an ideal hospital tank for most small aquarium fish: twenty-gallon "long" tanks are good for larger animals. I have two one hundred-fifty-gallon bins for treating sick koi. There should not be any gravel or other ornaments in the tank. If the species of fish is naturally skittish and requires shelter, place a suitable piece of old PVC pipe in the tank.

Mechanical filtration can be provided either by a sponge filter placed in the tank or by a simple outside power filter (without GAC). When it comes to biological filtration in the hospital tank, I do not recommend using undergravel filters. First, gravel on the tank floor will interfere with the cleanliness of the setup,

because waste products will get trapped in the gravel bed. Second, gravel will interfere with observation of the fish, the quantity of food consumed and waste materials produced. Third, the average length of stay in the hospital tank will be fourteen to thirty days. This is just long enough for a freshly started biological filter to complete its first cycle. During this time, ammonia and nitrite peaks will induce considerable stress on the already sick fish.

One solution to the problem of ammonia buildups in the hospital tank is to keep a sponge filter operating in a populated tank at all times. Then, when it is needed in the hospital tank, the sponge can be moved — nitrifying bacteria and all. Alternatively you can use a chemical ammonia remover in combination with water changes to control the ammonia levels,

keeping mind that ammonia removers destroy the effectiveness of many dye-based medications. The hospital tank should have one or more airstones, separate from the one in the sponge filter just for aerating purposes. The stones should be located half way between the water surface and the tank floor to provide maximum surface disturbance.

A reliable submersible tank heater should be available, strongly suggest a fully submersible heater because there are some diseases — such as swim bladder disorders — in which you may want to treat the fish by lowering the water level to just an inch above the fish's dorsal fin. In such instances, a fully submersible heater is the only reliable way to maintain consistent water temperatures in your hospital tank.

dissolved oxygen may indeed be part, if not all, of the problem.

If the problem turns out to be a basic decline in overall water quality then you should carry out a 75-percent water change. The only caution to this size water change is if the pH of the tank water is significantly lower than the pH of your tap water. The recommended maximum pH change per day is 0.2 units. With a large pH difference between tank and tap water it is better to change 15 or 20 percent of the water each day until the pH values are almost the same. An alternative is to raise the pH slowly using sodium bicarbonate. If the ammonia level is too high a chemical ammonia remover can be used to eliminate any residual ammonia left over after the water change. Water changes can also be used to reduce excess levels of nitrates.

At this point, you have improved the water quality but you still need to determine the root cause of the shift in water quality and fix it. On the one hand, normal biological processes in a tank will shift the water's pH toward the acid side over time. That is why weekly monitoring is strongly suggested. On the other hand, things do go wrong. Undergravel filters sometimes clog, fish die in some corner and foul the water and tank heaters fail.

If all of the water parameters appear to be normal but some of the fish are diseased or if the fish are indeed sick as a result of the stress of poor water quality the next step is to prepare a hospital tank. Fill the tank with tap water making sure that it is the same temperature, pH, hardness and salinity as the display tank. If your tap water contains chlorine or chloramines, use the appropriate chemical removers before adding the fish. Use airstones to provide maximum aeration of the water.

Remove the diseased fish to the

(continued on page eleven)

DRUG TREATMENT

Knowledgeably applied, drug treatment can be an effective tool in fighting fish diseases. The use of fish drugs, however, involves more than merely getting the concentration of the chemical right. Equally important is the treatment regimen: the method of applying the drug, the frequency with which it is reapplied and the duration of the treatment. There are a number of alternative methods for delivering chemo-therapeutants to diseased fish. These include:

Direct topical application -- applying the drug directly to a localized wound or infection site

Flakes, dips, short baths -- exposing the fish to a dilute concentration of a drug for several minutes to several hours. The fish is then returned to unmedicated water.

Long duration baths -- maintaining the fish in a dilute concentration of a drug for days or weeks.

Oral delivery -- the drug is added to food that is then fed to the fish. Alternatively, intubation can be used to force the drug down the fish's throat.

Injection -- drugs can be delivered by injection directly into the fish.

Each of these approaches has specific benefits and risks. Baths, for example, are easy to apply but in many cases fail to deliver drugs to internal sites of infection. Adding drugs to food is easy but one can never be sure of the actual amount of drug delivered per feeding. Sick fish often refuse to eat, especially if the food has a "medicinal" taste. Injection is the most direct way of delivering precise doses, but many fish are too small for safe injections and the hobbyist can easily kill a fish by using a faulty technique. Generally, the hobbyist is limited to dips, oral administration and

baths. Whichever method you use, it is crucial that the dose used match the method of application. Doses intended for dips and short baths are lethal to the fish if used in a long-duration bath.

In dealing with the frequency of readministering the medication and the total duration of treatment, many factors are relevant here. The chemical being used, the disease pathogen and water characteristics. For example, a mixture of malachite green and formalin can be used as a long-term bath to eliminate ichthyosporidiosis. A complete treatment regimen involves four applications of a properly dosed mixture spaced three days apart when water temperatures are around 72 degrees Fahrenheit. Total treatment time is twelve days.

Many fish drugs are limited in how and when they can be used. For example, malachite green should not be used with scaleless fish species. Potassium permanganate should only be used in acid waters in order to minimize the risk that the chemical will precipitate on the gills of the fish. Formalin should never be stored at temperatures below 59 degrees Fahrenheit, because a toxic substance is formed. Acriflavine kills plants. Chloramphenicol can cause heart problems in people who are sensitive to the drug and come into contact with very small amounts. These are just a few of the things to watch out for. Read labels carefully. You should always test out a new drug on a few fish before treating a large population of fish.

Fish drugs will work, but only if used properly. When using any chemo-therapeutant be sure that 1) you are using an appropriate drug for the problem, 2) you know the appropriate treatment regimen, 3) you know the correct therapeutic dose for that treatment regimen, 4) you carry out the full treatment regimen under all circumstances, and 5) you note the limitations on how and when the drug should be used.

hospital tank. Do not lift the fish out of the water with a net. This risks injuring the fish, and it removes the protective slime coat that has valuable disease-fighting properties. Instead use an appropriately sized net to direct the fish into a submerged plastic bowl. The fish should be taken from the tank submerged in the plastic bowl and carefully released into the hospital tank. Add synthetic fish slime coating to the hospital tank.

Once the diseased fish is removed, you should change fifty percent of the water in the main tank and replace the mechanical media and GAC in the filtration system. Fresh replacement water like fresh air for us, is a tonic for fish. A large water change can really perk up sick animals, even if the problem is not water quality related. The water change also reduces the bacterial and parasitic load in the tank water. By removing a diseased fish, which in its weakened state is a breeding ground for pathogens (disease-causing organisms), and changing the water, you increase the ability of the remaining fish in the display tank to fight off disease with their immune systems. An additional fifty-percent water change in the main tank the next day is also recommended.

The hospital tank also requires some attention. Many freshwater fish benefit greatly from a quantity of salt in the hospital tank water. Freshwater species that are intolerant of salt, as well as young fish, can be kept in concentrations of 0.05 to 0.1 ppm. 0.6 to 1 gram of salt per liter of water. More tolerant freshwater species, such as guppies, can be kept in salt concentrations of 0.3 ppm. 3 grams per liter of water. Use the kitchen gram scale to measure the salt. There are 3.785 liters in a gallon of water; multiplying 3.785 times the number of gallons in your aquarium will give you the total number of liters.

The use of salt serves several purposes. First, it relieves some

of the osmotic stress on the fish. The tissues and fluids of freshwater fish have roughly a one-percent salt concentration, whereas pure freshwater has only a negligible salt content. Because the fluids inside the fish have a significantly higher salt content compared with the fluids outside, water floods into the fish.

As a consequence, freshwater fish expend tremendous amounts of energy pumping water out of their bodies. Under normal circumstances, this is not a problem. When a fish is sick, however, this effort can further debilitate the animal. Thus, adding salt to the water lowers the osmotic gradient between the fish and its environment and allows it to conserve energy for fighting disease.

In addition, major wounds on fish -- such as those caused by bacterial infection or physical injury -- are pathways for the loss of minerals and ions crucial to maintaining proper metabolic activity. Rapid

loss of these minerals often results in death by "shock." Lowering the osmotic gradient by adding salt to the water reduces the mineral loss rate. Lastly, the reproductive rates of a number of pathogens are slowed by the presence of salt or by the osmotic change that accompanies the addition of salt to the tank.

Change seventy-five percent of the hospital tank water every day, no matter what else you do. A consistent set of water changes in the hospital tank over the course of fourteen days can cure many of the most common fish disease problems -- bacterial, parasitic and fungal. Be sure to add salt to the replacement water in the correct proportion.

By following the treatment outline above, you can stabilize the situation so that hurried actions -- and mistakes -- are avoided. These are only the initial steps you should take. Now it is time to turn to more complicated, and judgmental, steps.

(continued on page twelve)



IFGA BULLETIN EXTRACTS

The Guppy Association of Milwaukee proudly announces the first five volumes of the IFGA BULLETIN EXTRACTS containing the original, thought-provoking articles are now available. The IFGA BULLETIN EXTRACTS are must reading for every serious hobbyist of fancy guppies. Yellow, white, and blue are the colors of the IFGA Bulletin Extracts. The IFGA Bulletin Extracts are a must for every serious hobbyist of fancy guppies.

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that require considerable observation, thought and analysis.

You need to diagnose what the disease problem is. This is where your powers of observation and reading skills become valuable. In particular, you will need a copy of *The Manual of Fish Health* from Tatra Press, which I reviewed in the first part of this series.

FIVE GENERIC MEDICATIONS

In my experience as a hobbyist, some fish drugs have proven their worth far more than others. Reading the scientific literature confirms this. Below are a few generic chemo-therapeutics that believe will handle most of the problems you are likely to encounter. In all cases, keep in mind a daily seventy-five percent water change is essential.

Malachite Green & Formalin

An excellent mixture for eliminating external parasites and fungi from fish. This mixture is more effective against parasites and less toxic to fish than either of the two chemicals alone. There are several commercial mixtures available. The standard concentration when added to water should be about 0.05 milligrams of malachite green per liter of water (mg/L), and 15 mg/L of formalin. Unfortunately, few manufacturers provide the information needed to determine the delivered dose. Kordon's Rid-It+ will deliver these concentrations. With these and other medications, when you have a question about the product, contact the manufacturer.

Trichlorfon (Masoten)

This is a organophosphate chemical that is useful in controlling other forms of external parasites. It is effective against crustacea, parasites such as anchor worms and fish lice and trematode parasites such as skin and gill

This first thing to determine is whether the disease is internal or external. The second thing you want to know is whether it is caused by bacteria, parasites, or fungi. Take a large plastic bowl (or a utility tub in the case of very large fish) and use a net to coax the fish into it. Drain off just enough water so that the fish is completely submerged.

Alternatively, with very small fish you can trap the sick fish inside the bowl with the opening facing the tank's glass wall. The fish should not be able to move far from the glass, but neither should it be jammed up against the glass. Take out your magnifying glass and check for signs of external pathogens.

(continued on page thirteen)

flukes. Trichlorfon is available to the hobbyist in Aquarium Products Life-Bearer. When used according to the manufacturer's instructions, it will deliver the recognized dose of 0.25 mg/L of chemical to water. The treatment regimen varies according to the parasite.

Metronidazole (Flagyl)

This drug is an excellent remedy for fish suffering from problems with intestinal flagellated protozoa. It is quite effective in coping with Hexamita infections — the cause of the dreaded hole-in-the-head disease of discus and other fish. To assure getting metronidazole in the proper dosage, it is best to acquire this drug if needed, through the services of a local veterinarian. The most effective application is to mix the drug with fish food, so that the drug makes up one percent (by weight) of the daily feeding (i.e., 10 mg of drug per gram of food). The treatment regimen is to feed every twelve hours for five days. Alternatively, some success has been observed by adding 7 mg/L of the drug to hospital tank water. This is repeated every day for five to seven days.

Oxytetracycline

This drug is an old standard for treating bacterial infections. There is some disagreement about the ability of fish to absorb it from water. Used as a long-term bath, it is effective against external bacterial problems such as fin rot. Added to food, it can be used to treat internal infections. I suggest

concentrations of 20 mg/L (oxytetracycline to water) for long-duration baths and 50 to 100 mg/L for one-hour baths. Treatment should be repeated every day for a minimum of ten days. Alternatively, the drug can be used in daily feedings at concentrations of 50 to 75 mg of active drug per kilogram of fish. Oral application should continue for at least fourteen days. There are many products on the market for the hobbyist that contain oxytetracycline, but many do not dose at the recommended concentrations.

Nifurpirinol

This is one of the very few antibacterials that reliable documentation shows fish can absorb in therapeutic concentrations from hospital tank waters. You can add it to hospital tank water to treat systemic infections as well as external infections. It is very effective against columnaris disease and many common aeromonas infections. Aquarium Products' Furana is the only product available to hobbyists that contains nifurpirinol. Do not confuse this with the many "furan" products on the market. Furana will deliver the recommended therapeutic concentration of 0.1 mg/L for long-duration baths when used according to the manufacturer's directions. Nifurpirinol breaks down rapidly in bright light, even fluorescent room lighting. The hospital tank, therefore, should be well shaded. The treatment regimen involves daily dosing for a minimum of five days.

While it is always tempting to try to give diagnosis advice, such a complex topic requires far more space than I have here. Instead let me offer some procedural guidance. Use the pictures and descriptions in your book to narrow down the options. Write down the most likely candidates and the associated signs for them. Group them by bacteria, parasites or fungus.

There are, in fact, only a limited selection of fish drugs available that are useful, and these have fairly broad application within the pathogen group they apply to. In other words, the truly useful antibacterials tend to work against a wide range of the most common bacterial pathogens, and the most effective parasiticides kill many different types of parasites. So if you can narrow the problem down to external parasites, but you cannot determine whether it is ich, coccidia or chilodonella, that is fine because you will use the same treatment for all of them anyway.

If you are unable to reach any judgment about the problem, the time has come to seek outside advice. Continue the treatment outlined above and do nothing else. Your guessing a diagnosis poses more risk for the fish than does your sticking to water changes and holding off further treatment. Having to stop an inappropriate treatment mid-course and begin with a different treatment is dangerous and wastes time.

Try to find someone with specific knowledge of the species of fish you are having trouble with. Nothing is a better teacher than experience. If there is no one in your area, and if you have a personal computer with a modem and communications software (or you have a friend that does), you can leave a disease report addressed to the staff on CompuServe's FISHNET FORUM. There are a large number of very knowledgeable and friendly people there who can help you.

Once a generic diagnosis has been made, you might consider one of any number of therapies. As previously explained in many parts, a series of water changes will cure bacterial, parasitic and fungal problems. You might just wait for several days to see if there is an improvement. You will be surprised at what clean water and lack of crowding can do for a fish's health.

If the problem appears to be external parasites or a fungal infection, you might try a salt dip for freshwater fish, or a freshwater dip for marine fish. Place freshwater fish in a concentration of 25 grams of salt per liter of water for five to fifteen minutes (measure the water using the metric markings on a measuring cup). Use a bucket for this treatment, not the hospital tank. If the fish begins to roll over and lose its balance, return it immediately to the hospital tank. Be sure to heavily aerate the water and discard it immediately after use. This treatment can



Submitted by Kathy Scheffer

"As told you, it is a bottom feeder!"

be repeated once a day for several days.

If the treatment regimen outlined above does not work, the next step will have to be drug therapy. Be sure to use the most appropriate chemical. Check the dosage and

(continued on page fourteen)

TEX'S
AQUARIUM STORE



Submitted by Marilyn Jones

"Yes Sir! That is a ten-gallon tank!"

**FIRST PLACE
MULTI DELTA
RUSTY STRADER
HEARTLAND GUPPY CLUB SHOW
JUNE 5-8, 1983**
(Photograph Courtesy Of Dennis Cummings)



**FIRST PLACE
AOC BICOLOR TANK
JIM JIRKU
PAN PACIFIC GUPPY ASSOCIATION SHOW
JULY 11-12, 1982**
(Photograph Courtesy Of David Wender)



**BEST OF SHOW TANK
RED TANK
GARY MOUSSEAL
GUPPY ASSOCIATES OF MILWAUKEE SHOW
AUGUST 7-9, 1993**
(Photograph Courtesy Of Dennis Cummings)



GUPPY ROUNDTABLE

171

BITTEN BY THE "GUPPY BUG"

By Edward Richmond
East Coast Guppy Association
South Jersey Guppy Group

My on and off again experiences in raising guppies began over forty years ago. In the 1950's when raised Trinidad and Swordtail guppies, and the "guppy bug" first bit me.

Then in the early 1960's after not raising guppies for a few years, I had occasion to attend a tropical fish show, and was truly amazed at the guppies I saw. I made it a point to visit the homes of some of the breeders. One of the places visited was Mac's Guppy Hatchery and I could not believe the number of tanks filled with Blues, Greens, Mottles, etc.

It was there that I found out about the Paul Hahnel Guppy Club which met near where I lived. Upon joining, I met breeders like Fred Glimm, A. Martinez, Vic Pileo and a young boy who grew up to be big Frank Schulerbrandt, still a familiar face at shows. I can still remember the first time I visited A. Martinez's fish room and could not believe the Half-Black Reds and Reds swimming in his tanks. They were the largest and most vividly colored guppies that I have yet to see.

In the mid 1960's, due to a lack of time, I once again had to give up my guppies. However, in the early 1970's the "guppy bug" bit again and I joined the East Coast Guppy Association and met one of the all time top breeders Mike Lastella. I was

fortunate to spend many an evening at his house and was amazed at the color and quality of his fish particularly his Greens and Half-Black Orchids. He never failed to be helpful with advice. Meanwhile my own fish room had grown to eighty-five tanks and I had some success showing my fish. Around the early 1980's, once again gave up my guppies due to more pressing family matters and disposed of everything, thinking that was it for me with guppies.

About five years ago, after my children were married and my wife had passed away I found nothing but spare time on my hands. I was now living in a condo and decided to set up a twenty-gallon tank with various fish. About three months later my daughter bought me a pair of pet shop guppies, remembering how I had always enjoyed them. Needless to say they did not survive very long, but the "guppy bug" had bitten again.

I learned that one of the good breeders at this time was Stephen Kwarter. I called him and luckily he remembered my name. As luck would have it he was speaking at

a local club the following week and said he would bring some guppies for me if I could attend. I could not believe the excellent line of Half-Black AOC's he gave me while at the same time inviting me to visit his fish room.

Well as anyone who has seen his fish room knows, one look and you go "guppy crazy" tank after tank after tank of perfect fish. In no time I set up ten tanks in my den and rejoined the East Coast Guppy Association happy to find the familiar faces of Mike Lastella and Vic Pileo still in the club.

About six months later while hosting a meeting at my house Stephen Kwarter suggested the couch in my den was taking up room where fish tanks could go. I laughed at his suggestion, but the next day the couch went out and twenty-five more tanks came in.

I am firmly convinced that once the "guppy bug" bites, you will never get it out of your system, and will come back if the opportunity presents itself. Not only for the enjoyment of raising guppies, but for the friendships you make and the memories this hobby affords you. In my case over forty years and still counting.

SOUTH JERSEY GUPPY GROUP AUCTION ANNOUNCEMENT

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SOME GUPPIES I HAVE KNOWN

By Jim Alderson, D.V.M., President
International Fancy Guppy Association
Pan Pacific Guppy Association

Over the years guppy strains have come and gone, but a few well established lines continue to serve as the basis of the fish that we show today. These lines are the ancestors of the fish that we show on the bench. There is much discussion about whether the fish of yesterday were bigger and better than the guppies of today.

I have been regularly attending IFGA show since I was sixteen years old and showing actively for twelve years. Overall today's fish are much better than they were twenty years ago. I am not so sure that today's fish are better than they were eight to ten years ago. 1984 to 1988 we had some very knowledgeable breeders showing fish they had worked with for many years. We had breeders like Tom Allen, Rich Badar, Mike Casola, Bill Orth, Stan Shuber, Vic Pileo, and Ron Vater all showing fairly heavily. These were people with mountains of guppy experience and very nice fish.

Many of the newer members have done an excellent job working with the line they have acquired, but it will be generations and perhaps years before they have the experience necessary to consistently produce very high quality fish. During my first five or six years in the hobby I tried to acquire the best fish I could find. I purchased fish, swapped fish, bought auction fish and was given fish. During this time became quite familiar with the established lines that were available.

After working with these fish I began to learn the distinguishing

characteristics of the various lines and how well they would cross with other lines. In the following paragraphs I will describe some of the lines I have worked with and the traits I have found them to carry. I am sure some of the members will remember these fish and know more about them than I do, but my aim is to give everyone a recap of the genetic history of

the fish that may help them in their breeding program.

One of the biggest names in the guppy hobby was Glen Parrish. There are many people still in the hobby today who knew Mr. Parrish and his superior guppy raising techniques. Glenn was a member of the Pan Pacific Guppy Association. He raised Blues, Bronzes, Greens, Purples, Snakeskins, Half-Black Yellows and AOC Bicolors.

(continued on page nine)

HELPFUL HINTS

By Luke Roebuck
Pan Pacific Guppy Association

—Did you know that you can recycle used filter carbon and zoobio by soaking in a super saturated solution of saltwater?

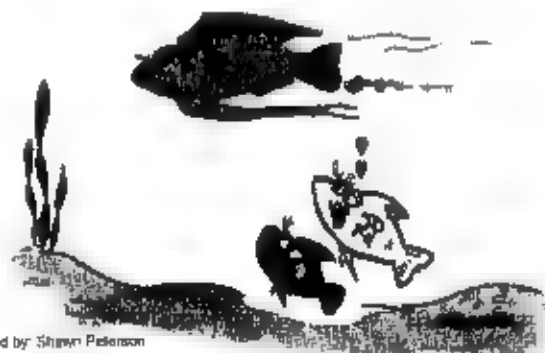
—Did you know that you can freeze excess brine shrimp nauplii from a large hatch? Siphon the concentrate (orange nauplii) with a syringe and plastic tubing (live rock feeder) or turkey baster and place in plastic cube trays for freezing.

—Did you know that you can

create an excellent biological filter medium by using old cut up bed sheets or towel cloth?

—Did you know that a teaspoonful of Epsom Salts added to the brine shrimp hatching solution can increase the hatchability of the eggs?

—Did you know that you can re-vacuum seal your brine shrimp eggs in their original container with plastic lids? Easy by purchasing the vacuum seal pump available by mail order as advertised on cable television.



Submitted by Shawn Peterson

"Hey, check out the pectorals on that guy!"

Parrish fish were famous for their rapid growth rate and large size. His Blues, Greens and Purples were brilliantly colored with color usually extending well up into the body. The developing males would sometimes grow to one inch or more in length before beginning to develop a caudal. The one major fault of the Parrish fish was the lack of a matching dorsal fin. The dorsal fin was usually white or a lighter shade of the caudal color with small black dots throughout.

I have used these fish extensively over the years to incorporate into my lines. To avoid getting the non-matching dorsal, I have used the Parrish females to cross with males from strains that had matching dorsals. The males of the Parrish line were sometimes less fertile than other lines. For this reason I would select two or three males at approximately three to four months of age and breed them to five females.

The old guppy axiom was that you could not get babies from a Parrish female that was older than four months when you first bred her. Currently all of my Blues, Greens and Purples have some Parrish stock in them. My larger greens still throw a few fish of the Parrish type with non-matching dorsal fins.

Tom Allen is the only breeder I know of that still has pure Parrish stock in his fish room. He has been kind enough to supply me with these over the years.

In the late sixties various members of the Pan Pacific Guppy Association imported the first Half-Black Pastels into this country from Germany. They divided the drops up between the members. These were small but well colored fish. Glenn Parrish crossed them through his yellow line

to increase the size and vigor. Those guppies were the origin of all the Half-Black Pastels in this country.

In the late seventies and early eighties Vic Pileo had the nicest Half-Black Pastels in the country. They were a very pure line. They grew somewhat slowly but would reach good size if given enough time. About 1980 Frank Chang visited Vic in New York. Vic was changing colors of fish so he pretty much let Frank have the pick of the fishroom.

Frank raised the Half-Black Pastels and distributed them to many individuals. Tom Zelinski, of Milwaukee, Wisconsin, acquired the guppies from Frank and outcrossed them with a Green or Blue/Green Bicolor. It took several generations to purify the color after the outcross, but the result was the largest Half-Black Pastels ever put on the bench.

Almost all of the Half-Black Pastels being shown today originate from the Zelinski fish. My current line of Half-Black Pastels is a cross between the Zelinski line and the original Half-Black Pastels that Frank Chang acquired from Vic Pileo. They are an excellent line to have around especially for outcrosses. I use them to outcross to my Half-Black AOC and to my white AOC lines.

I recently crossed a Half-Black Pastel male into a Blue female and got some nice Half-Black AOCs with white in lavender caudals with black markings. Because the Half-Black Pastels are a very pure line you will usually get an abundance of hybrid vigor when outcrossing them.

In next month's issue of the Guppy Roundtable will describe some other lines that are familiar with.

Guppy Swap Shop

FOR SALE: Most varieties of delta strains from top blood lines. Also swordtails and guppies at very reasonable prices. Live delivery year-round and satisfaction guaranteed. Price list \$1.00 or contact Frank Hekel, 189 Freedom Road, Pleasant Valley, New York 12089-5434, 514-635-847 for information.

CLUB ON A MISSION: The Pan Pacific Guppy Association is aggressively looking to purchase several classes of guppies not currently represented in our club: BRONZE, GOLD, SNAKESKIN and YELLOW DELTAS. Please contact: Davidson Tull, 389 Marlton Avenue, Los Angeles, California 90034, 310-836-1134.

FOR SALE: Blue, Green, Half-Black AOC, Half-Black Blue, Half-Black Pastel, Red, Variegated Snakeskin Deltas and other colors available at different times. One trio \$35.00, two trios \$60.00, three trios \$75.00 plus \$19.00 Express mail or \$5.00 Priority Mail postage. Send inquiries to Jim Alderson, 35035 Golden Springs Drive, Diamond Bar, California 91769.

Attempting to buy, sell or trade fish, or fishroom related equipment and supplies? A monthly feature of Guppy Roundtable is a dedicated advertisement section restricted to subscribers of Guppy Roundtable. A maximum of four advertisements per item may be purchased for the reasonable price of \$2.00 per month. This special advertisement rate applies to personal advertisements ONLY.

The Newsletter Editor/Publisher reserves the right to refuse to publish any inappropriate advertisements. Submission of ad copy to the Newsletter Editor/Publisher does not constitute a commitment by the Pan Pacific Guppy Association to publish the advertisement.

PLEASE MAIL AD AND PAYMENT TO:

Davidson Tull
Pan Pacific Guppy Association
389 Marlton Avenue, Jull 8
Los Angeles, California 90034-5434

TIP OF THE MONTH

By: Luke Roebuck
Pan Pacific Guppy Association

You know the old saying "a picture is worth a thousand words"?

Well, when you set up your breeding cards, I have found that photographs of the breeding male and female (state age of fish at time picture is taken) can assist in determining how the successive progeny and generations compare with the original breeders (parents). It also saves an abundance of space and eliminates potential errors in phenotypic descriptions.

MESSAGE FROM THE PRESIDENT

By Jim Alderson, D.V.M., President
International Fancy Guppy Association
Pan Pacific Guppy Association

Dear IFGA Members

The show season is just around the corner. I hope everyone has spent some time working on their lines this winter. It would be great to see some fierce competition on the show bench this season. Members should work on some of those classes that have been a little weak and bring them up to speed. The AOC Bicolors, Albino, Blacks, Blue/Green Bicolors, Mullis, Red Bicolors, and Snakeskins are classes that could use some extra entries and increase in the overall quality. Certainly do not mean to offend anyone. Remember even poor classes can have exceptional entries.

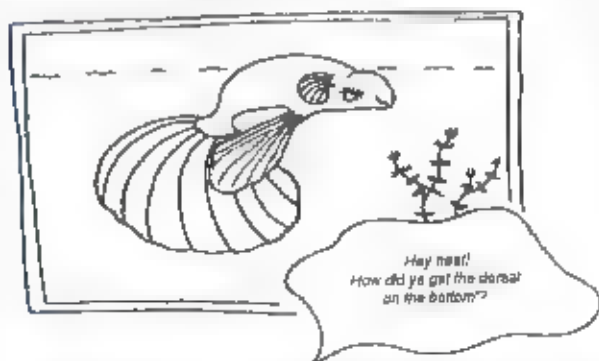
For years American breeders and judges have been biased towards solid color fishes. Many of the fancy guppies that exhibit patterns can be very striking and I think we need to do more to promote these color classes by supporting them with more entries. Many new people entering the hobby find these varicolored fishes more attractive.

At last year's annual meeting some individuals felt that the three and one half hour meeting was too brief. They complained that there was more that needed to be discussed. We are somewhat constrained by the schedule of events at the show, namely the judging that needs to be done before the banquet.

Please remember the meetings are for the delegates representing their club. If you have an idea or suggestion from your club you would like heard then come prepared. Written handouts make things more clear if the suggestion is not a simple one. If there is something you are unhappy with, then come with well thought out suggestions for improvement. This makes the meeting a positive experience and not a forum for personal gripes.

Last year I asked for delegates to come prepared for discussion with ideas and solutions. Try to be concise and clear so that we can avoid meandering discussions. Our club needs more methods of dispersing information to its members and potential members.

NOVICE TO NOVICE



Submitted by Tom Weidenhafer & Don Barker, Guppy Associates International of Chicago

International Fancy Guppy Association Officers

PRESIDENT
JIM ALDERSON
20938 Golden Springs Drive
Diamond Bar, California 91765

VICE PRESIDENT
MARLYN JOHNSON
38 Warren Avenue
Amherst, Massachusetts 01002

SECRETARY
JANEY MAGNICO
27 Wagon Road
Nutley, New Jersey 07110

TREASURER
BOB STRATTON
308 Allen Avenue
Cincinnati, Wisconsin 54001

JUDGING BOARD CHAIRMAN
PAUL GORSKI
229 Marsh Island Drive
Chesapeake, Virginia 20530

PARLIAMENTARIAN
PAUL BLOOD
38 T Cumberland Drive
Philadelphia, Pennsylvania 19126

Committee Chairpersons

AWARD POINTS CHAIRPERSON
RUDY MARSHALL
2406 Conestoga Court
Raleigh, North Carolina 27604

CLEARINGHOUSE
STEPHEN KWARTLEN
184 Mulner Avenue
Brook, New York 10602

CORRESPONDENCE SECRETARY
RAVIN BOLANON
1450 SW 24th Avenue
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MEMBERSHIP
MARLYN JOHNSON
38 Warren Avenue
Amherst, Massachusetts 01002

NOMINATING
GENE DOLNICK
220 East Jackson Street
Mantoloking, New Jersey 08050

MAKE LASTELLA
3340 York Boulevard
Columbus, New York 11572

STAN SHUBEL
5715 Highway Lake Drive
Novi, Michigan 48043

PUBLICITY
DAVID POLUNAS
548 North Bridge Street
Bridgeport, New Jersey 08007

INTERNATIONAL FANCY GUPPY ASSOCIATION
SPONSOR CLUB: GUPPY ASSOCIATES INTERNATIONAL OF CHICAGO
NOVEMBER 6, 1993

The meeting was called to order by President Jim Alderson

Due to the transition from the old Membership Chairman to the new one, Marilyn Johnson, the clubs did not receive their packets for dues and rosters which were to be turned in prior to this meeting. Therefore a motion was made by Jim Alderson to suspend the rules of order for this meeting only. Seconded by Harold Morgan. Passed.

Also due to the fact that an Agenda and the Minutes had not been printed in the Bulletin prior to the meeting a motion was made to suspend the rules of order on this point for this meeting only. Seconded by Paul Gorski. Passed.

SECRETARY'S REPORT
Rose McCreary

Copies of the minutes were sent to all of the clubs prior to the meeting but since they had not been published Jim Alderson highlighted the minutes to the membership.

A correction to the realignment of regions was made since Milwaukee was listed in two regions. They are in the Eastern region.

The addition of Veil class sponsorships which were not listed in the minutes were:

Variegated Caudal Trophy Athletic
Snakeskin Rusty Strader
Half Black Gary Moussau

A motion was made by Paul Blood

ROLL CALL Rose McCreary

Alabama Guppy Club
Big Apple Guppy Group
Columbus Ohio Guppy Specialists
East Coast Guppy Association
Fancy Finny Friends
Gateway Guppy Associates
Greater Delaware Valley Guppy Club
Greater Virginia Guppy Club
Guppy Associates Greater Cleveland
Guppy Associates of Int. of Chicago
Guppy Associates of Milwaukee
Heartland Guppy Club
Houston Guppy Club
Mid South Aquarium Society
Michigan Guppy Breeders
New England Fancy Guppy Assn
Northwest Ohio Guppy Club
Pan Pacific Guppy Association
South Florida Guppy Association
South Jersey Guppy Group

NAME	DESIGNATION
Dwight Patton	Delegate
Steve Prochak	Delegate
Don Saurers	Delegate
Mike Jabella	Delegate
NOT PRESENT	
Mark Lewis	Delegate
Paul Blood	Delegate
Paul Gorski	Delegate
Charlie Hall	Delegate
Gene Gollmowski	Delegate
Bob Stratton	Delegate
Ron DeVono	Delegate
Harold Morgan	Delegate
NOT PRESENT	
Stan Shubel	Delegate
Marilyn Johnson	Delegate
Dan Whitmer	Delegate
Jim Alderson	Delegate
NOT PRESENT	
Dave Polunas	Delegate

The Secretary reported that a quorum was present and that the meeting could continue.

It was reported that South Florida was not present at the last meeting and had not paid their dues for 1994. They will be dropped from the roll call for the next meeting.

To approve the Secretary's Report as distributed to all clubs and duly noted at the meeting subject to the following amendments that those actions in old business be moved to the agenda of the annual meeting. Seconded by Harold Morgan. Passed.

TREASURER'S REPORT
Robert Stratton

BALANCE AS 5-15-93 ---- \$4211.08
INCOME ----- 901.00
WORKING CAPITAL ----- \$112.00

EXPENSES ----- \$49.05
BALANCE AS 11-5-93 ---- \$4463.00

Audit committee was appointed to consist of Paul Blood, Harold Morgan and Paul Gorski.

A motion was made by Paul Blood to accept the Treasurer's Report subject to the audit committee's report. Seconded by Harold Morgan. Passed.

JUDGING BOARD REPORT
Paul Gorski

The Judging Board met prior to the meeting and reported that two judges will be reduced to assistant judges: John Allen and Bill Orth.

Three items of discussion consisted of the restructuring of the veil class. The Judging Board felt that the new classes are working out well. The second item was for symmetry to be emphasized more in the seminars and the third item was to be more strict in judging half black classes requiring a fish to be more half black instead of washed out color.

The Judging Board also recommends that in tabulating points for the Grand Overall Male award, that due to the restructuring of the veil classes, Best of Show Veil points for first place should be the only points calculated into Grand Overall since there are only five veil classes.

A motion was made by Marilyn Johnson to accept the Judging Board report. Seconded by Harold Morgan. Passed.

(continued on page 22)

MEMBERSHIP REPORT:

Marlyn Johnson

Marlyn reported that since the two clubs that were voted in at the last meeting had not yet started getting the bulletin or any other benefits of being a member they should have their dues that were paid applied to 1994. Marlyn also asked that each club should give him a name and address for club contact for each club.

Marlyn also reported that there are three new clubs asking to become members which will be brought up under new business.

PUBLICITY REPORT:

Dave Polunas

Dave reported that he has located other magazines that will publish show information but they need it 4-5 months prior to the show date. To publish the information what is needed is the club name, show date, location and club contact with phone number.

PUBLICATION REPORT:

Davidene Tall

Davidene reported that now that the publication is becoming larger (more pages) it is becoming infeasible to send first class. She recommended sending it second class which reduces the cost per issue but requires a \$275.00 annual fee. The Postal Service, however, guarantees delivery in 3-7 days world wide.

CLEARING HOUSE-SWAP SHOP:

Steve Kwattler

Steve reported that there has been good responses from people since he became the Chairperson. A discussion was held on starting the classified ads that had been brought up at a previous meeting. It was decided that there will be the Clearing House which would consist of listings of guppy lines available. Names could be placed on the list free of charge by members of the

F.G.A. There will also be the Classified SWAP SHOP where you can advertise for \$2.00 if you have fish or equipment to sell or are seeking other information such as looking for a ride to a show.

SHOW ROTATION:

Marlyn Johnson

Regional Realignment Correction:

EAST

Big Apple
East Coast Guppy Association
Fancy Finny Friends
Greater Delaware Valley Guppy Society
Guppy Associates of Milwaukee
New England Fancy Guppy Association
South Jersey Guppy Group

MIDWEST

Columbus Ohio Guppy Specialists
Guppy Associates of Greater Cleveland
Guppy Associates International of Chicago
Michigan Guppy Breeders
Mid South Guppy Associates
Northwest Ohio Guppy Club
South Florida Guppy Association

WEST

Alabama Guppy Club
Gateway Guppy Associates
Heartland Guppy Club
Houston Guppy Club
Greater Virginia Guppy Club
Pan Pacific Guppy Association

A motion was made by Paul Gorski to accept the show schedule. Seconded by Harold Morgan. Passed.

AWARDS REPORT:

Rudy Marshburn (not present)

Paul Gorski reported that Rudy Marshburn had made an error in calculating points during the transition. A fourth place award recipient had not been listed allowing that person to continue to show in the Novice Class during the current show season. That person will be awarded the fourth place trophy for last show season and all current points will have to be forfeited in the Novice Class point standings. Paul also reported that it is the Show Chairpersons responsibility to send copies of their results to the Awards Chairperson. Editor Judging Board Chairperson and Secretary within two weeks of their show so that points can be tabulated on a timely basis. (Fifteen Minute Break)

OLD BUSINESS:

A motion was made by Paul Blood to have the By-laws reflect the point changes that were instituted at the May 1993 meeting and then the Judging Chairperson is

to receive a complete copy of each club's show results. Seconded by Paul Gorski. Passed.

1994 SHOW SCHEDULE

CLUB	SHOW DATES	RULES DUE
South Jersey Guppy Group	April 8 - 10	February 1
Heartland Guppy Club	April 30 - May 1	February 1
Gateway Guppy Associates	May 21 - 22	March 1
Columbus Ohio Guppy Specialists	June 25 - 28	April 1
East Coast Guppy Association	July 18 - 17	May 1
Pan Pacific Guppy Association	August 6 - 7	June 1
New England Fancy Guppy Association	August 27 - 28	June 1
Guppy Associates International-Chicago	September 17-18	July 1
Guppy Associates of Milwaukee	November 4 - 6	August 1

The meeting will be held at the Gateway Guppy Associates show with the Judging seminars at Guppy Associates of Milwaukee and New England Fancy Guppy Association shows.

Paul Blood made a motion to adopt the following motions as presented at the middle meeting.

A motion was made by Rose McCreary to raise the trophy sponsorships for 1994 to \$45.00 and for 1995 to \$50.00. A motion was made by Rose McCreary to suspend the rules of order to allow the meeting to be held in May. Seconded by Paul Gorski. Passed.

A motion was made by Paul Blood to have the By-laws reflect that the Judging Board will consist of seven or more persons. Seconded by Jim Alderson. Passed.

Updated Constitution and By-laws should be available at the May meeting.

Clarification was made on the Annual show rotation that if a region passes for hosting an Annual they do not have the option of taking it again until the rotation has gone completely around again.

Marlyn Johnson made a request that if anyone has any old bulletins that has anything relating to show rotation or regional alignment, he would appreciate it if it could be sent to him.

NEW BUSINESS:

Audit Committee reported the treasurer's report to be materially correct as presented.

It was reported that the Guppy Roundtable is currently publishing the bulletin at a loss because of the number of subscriptions still in effect from prior to the transfer. Paul Gorski made a motion to transfer the sum of \$1700.00 to the Pan Pacific Guppy Association to get their budget back on track and compensate for the number of subscriptions that were existing at the time of the transfer. Seconded by Harold Morgan. Passed.

Paul Blood made a motion that we allocate the \$182.00 plus \$5.00 shipping cost for the P.F.G.A. to purchase the necessary software to make scanning typed articles easier to transfer to the format used for the Guppy Roundtable. Seconded by Paul Gorski. Passed.

Paul Gorski made a motion that the I.F.G.A. establish a one time additional Novice trophy to the exhibitor who was having points revoked through no fault of his own. This exhibitor is currently leading the standings by a very healthy margin. Seconded by Marlyn Johnson. Passed.

Paul Blood made a motion that the I.F.G.A. pay its proportionate share of the current \$225.00 cost to start using second class mail. Seconded by Paul Gorski. Passed.

Rose McCreary informed she was resigning as Secretary due to the demands of her job at the family's pet shop.

Davidene Tall informed the membership that the new deadline for publication is the first of the month prior to issue date.

Discussion was held on how the general public has a misconception the \$20.00 subscription fee is actually a membership to the I.F.G.A. Clubs are members of the I.F.G.A., not individuals.

A motion was made by Marlyn Johnson to accept Alabama and Northwest Ohio as member clubs and the dues that they had paid at the last meeting will be considered dues for 1994. Seconded by Paul Gorski. Passed.

It was decided that all inquiries about guppies will be forwarded to the local clubs so that the people will receive more personal attention. An inquiry packet will be put together by Inen Solomon which will be distributed to every club to use when they receive inquiries.

Jim Alderson announced that Jeremy Magnifico will be taking over as secretary of the I.F.G.A.

Based upon our historic experience we will be up for regional realignment at the next annual meeting.

A motion was made by Jim Alderson

Discussion was held on how the general public has a misconception the subscription fee to the Guppy Roundtable is actually a membership to the I.F.G.A. Clubs are members of the I.F.G.A., not individuals.

to accept the By-laws as distributed at the Michigan meeting and as amended today. Seconded by Harold Morgan. Passed.

A motion was made by Marlyn Johnson to accept three new clubs as members of the I.F.G.A. Bronx Guppy Breeders, Florida Guppy Group and Western New York Guppy Association. Seconded by Paul Blood. Passed.

A motion was made by Bob Stratton to reinstate Garden State Guppy Associates as a member club. Seconded by Marlyn Johnson. Passed.

A motion was made by Harold Morgan to adjourn the meeting. Seconded by Paul Gorski. Passed.

OFFICIAL INTERNATIONAL FANCY GUPPY ASSOCIATION SHOW RESULTS

GUPPY ASSOCIATES INTERNATIONAL OF CHICAGO NOVEMBER 5, 7, 1993 802 HUNDRED THIRTY ENTRIES

BEST OF SHOW TANK (FOURTY-NINE ENTRIES)

FIRST PLACE	SECOND PLACE	THIRD PLACE	FOURTH PLACE
JIM MAKER Half-Black Purple	ST. LAKE - KWAK'LEB Half-Black AOC	THOMAS JEFFER Half-Black Purple	JIMMY PERSON Blue

BEST OF SHOW MALE DELTA (FOURTY-NINE ENTRIES)

FIRST PLACE	SECOND PLACE	THIRD PLACE	FOURTH PLACE
JIM ALDERSON Red	JIMMY KENNEY Half-Black Purple	VICTOR WATTS - A Copper	JOE CARROLL Blue

BEST OF SHOW MALE BOWD/VAIL TAIL (FOURTY-NINE ENTRIES)

FIRST PLACE	SECOND PLACE	THIRD PLACE	FOURTH PLACE
JOE KLEIN Spoken	KEVIN STEINMETZ Blue/Grey	DAN WHITMER Body/Tail Color	PHILIP HUI Single Bowd/Vail

BEST OF SHOW FEMALE (FOURTY-NINE ENTRIES)

FIRST PLACE	SECOND PLACE	THIRD PLACE	FOURTH PLACE
WATY & PAM - PAUL Half-Black AOC	JOAN - JOAN Blue/Grey	ROU KY PASQUE Half-Black Red	JOAN WEICKENHOFER Blue

BREEDER MALE (FOURTY-NINE ENTRIES)

FIRST PLACE	SECOND PLACE	THIRD PLACE	FOURTH PLACE
GARY MOUSSEAU	GARY MOUSSEAU	BRENNAN KAWLER	STEFAN KAWLER

BREEDER FEMALE (FOURTY-NINE ENTRIES)

FIRST PLACE	SECOND PLACE	THIRD PLACE	FOURTH PLACE
TRIPLE LING	JIM WOLFF	PAUL PETER	TOM & FRANK

VEIL CLASSES

BODY/TAIL COLOR (FOURTY-NINE ENTRIES)	HALF-BLACK (FOURTY-NINE ENTRIES)	SNAKE/SKIN (FOURTY-NINE ENTRIES)	SOLID CAUDAL (FOURTY-NINE ENTRIES)	VARI-GATED CAUDAL (FOURTY-NINE ENTRIES)
1. Jim Makin 2. Jim Makin 3. Mark & Pam Lewis	1. Eric & Verna Bryant 2. Doug Hild 3. Doug Hild	1. Bill Koon 2. Bill Koon 3. Bill Koon	1. Jim & Brenda Folt 2. Jim & Brenda Folt 3. Jim & Brenda Folt	1. Doug Wolf 2. Doug Wolf 3. Doug Wolf

FEMALE CLASSES

ALBINO FEMALE (FOURTY-NINE ENTRIES)	AOC FEMALE (FOURTY-NINE ENTRIES)	BLACK FEMALE (FOURTY-NINE ENTRIES)	BLUE/GREEN FEMALE (FOURTY-NINE ENTRIES)	BRONZE FEMALE (FOURTY-NINE ENTRIES)
1. Gene Garmusch 2. Gene Garmusch 3. Gene Garmusch 4. Gene Garmusch	1. Mark & Pam Lewis 2. Mark & Pam Lewis 3. Mark & Pam Lewis 4. Mark & Pam Lewis	1. Robert Pasqua 2. Robert Pasqua 3. Robert Pasqua 4. Robert Pasqua	1. Tom Stagg 2. Tom Stagg 3. Tom Stagg 4. Tom Stagg	1. Gene Garmusch 2. Gene Garmusch 3. Gene Garmusch 4. Gene Garmusch
GOLD FEMALE (FOURTY-NINE ENTRIES)	HALF-BLACK AOC FEMALE (FOURTY-NINE ENTRIES)	HALF-BLACK RED FEMALE (FOURTY-NINE ENTRIES)	RED FEMALE (FOURTY-NINE ENTRIES)	
1. Gene Garmusch 2. Gene Garmusch 3. Gene Garmusch 4. Gene Garmusch	1. Mark & Pam Lewis 2. Mark & Pam Lewis 3. Mark & Pam Lewis 4. Mark & Pam Lewis	1. Robert Pasqua 2. Robert Pasqua 3. Robert Pasqua 4. Robert Pasqua	1. Tom Stagg 2. Tom Stagg 3. Tom Stagg 4. Tom Stagg	

JUDGES

Jim Anderson, Paul Olson, Mike Garmusch, Steve Garmusch, Paul Garmusch, Jim Jolly, Mark Johnson, Bill Koon, Stephen Kowler, David Kozak, Mike Kozak, Jimmy Kowler, Larry McGee, Sam Mousseau, Frank Orsini, Dave Pasqua, Jim Pasqua, Don Pasqua, Terry Pasqua, Steve Wolf, ASSISTANT JUDGES

Paul DeWitt, John Mackay, Ed Richmond, Barry Smith, Robert Smith, Steve Smith, Bob VanDenLangenberg

JUNIOR DELTA

1. Andy Buz
2. Andy Buz
3. Andy Buz
4. Andy Buz

JUNIOR VIL

1. Andy Buz
2. Andy Buz
3. Andy Buz
4. Andy Buz

JUNIOR TANK

1. Andy Buz
2. Andy Buz
3. Andy Buz
4. Andy Buz

JUNIOR FEMALE

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2. Andy Buz
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NOVICE DELTA

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NOVICE VIL

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NOVICE FEMALE

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SHO

SECOND HALF 1993-1994 SHOW SEASON

**SOUTH JERSEY GUPPY
ASSOCIATION
SHOW DATES**
April 9, 10, 1994
RULES DUE DATE
February 1994

**HEARTLAND GUPPY CLUB
SHOW DATES**
April 30, May 1, 1994
RULES DUE DATE
February 1, 1994

**GATEWAY GUPPY ASSOCIATES
SHOW DATES**
May 21, 22, 1994
RULES DUE DATE
March 1, 1994

**COLUMBUS OHIO GUPPY
SPECIALISTS
SHOW DATES**
June 25, 26, 1994
RULES DUE DATE
April 1, 1994

FIRST HALF 1994-1995 SHOW SEASON

**EAST COAST GUPPY
ASSOCIATION
SHOW DATES**
July 15, 16, 1994
RULES DUE DATE
May 1994

**PAN PACIFIC GUPPY
ASSOCIATION
SHOW DATES**
August 6, 7, 1994
RULES DUE DATE
June 1, 1994

**NEW ENGLAND FANCY GUPPY
ASSOCIATION
SHOW DATES**
August 27, 28, 1994
RULES DUE DATE
June 1, 1994

**GUPPY ASSOCIATES
INTERNATIONAL OF CHICAGO
SHOW DATES**
September 17, 18, 1994
RULES DUE DATE
July 1, 1994

**GUPPY ASSOCIATES OF
MILWAUKEE
SHOW DATES**
November 4, 5, 1994
RULES DUE DATE
August 1994

ALBINO DELTA

1. Gene Garmusch
2. Gene Garmusch
3. Gene Garmusch
4. Gene Garmusch

ALBINO TANK

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East 58th Street, Kansas City, Mo.

SOUTH JERSEY GUPPY GROUP

Seven Point International Fancy Guppy Association Sanctioned Annual Bowl Show
APRIL 9 10, 1994

LOCATION
RAMADA INN
Routes 1 & 2 South
Newark, New Jersey
201 624-4000

SCHEDULE
SATURDAY
8:00AM Entries open
1:00PM Entries close-NO EXCEPTIONS
4:00PM Judging
8:00PM Hospitality Room/Awards

SUNDAY
8:00AM Open to the Public
1:00AM Silent Auction
12:30PM Debanching

SHOW CHAIRMAN
Ed Rulivord
40 Westington Court
Staten Island, N.Y. 10314
718 751-0 86

SHIPPED IN ENTRIES
Don Davis
23 Wheeling Avenue
Staten Island, New York 10306
718 358 6443

PRIOR NOTIFICATION APPRECIATED

1 All shipped in entries must be received by midnight Friday April 8th, 1994 NO EXCEPTIONS MADE

2 Correct health protocols must accompany shipment of fish or they will be auctioned

3 Any fish that may be shipped from out of the country should be marked "NO COMMERCIAL VALUE"

AWARDS

SINGLES-TANKS-BREEDERS
First Plaques
Second Third & Fourth Award Cards

BEST OF SHOW

First Plaques
Second, Third & Fourth Awards

AUCTION

Exhibitors must indicate on entry form if their fish are to be auctioned. A female must accompany all males. Fifty percent of the auction proceeds will be retained by the South Jersey Guppy Group.

ACCOMMODATIONS

Room reservations may be made directly through the Ramada Inn 201 624 4000. Mention IFGA Guppies for discounted room rates. Please make reservations at least two weeks in advance for hotel accommodations.

DIRECTIONS

Take the New Jersey Turnpike to Exit 14. Go through toll plaza and follow signs for Route 1 and 2 South. Ramada Hotel is on the right approximately five miles from toll plaza.

GENERAL RULES

All entries must be registered by 3:00PM entry on Saturday, April 9, 1994. No Exceptions will be made.

2 Exhibitors will determine class of fish, however assistance will be available at the time of entry if needed.

3 All entries improperly classified will be disqualified.

4 No gravel, lined water, greens or decorative items will be permitted.

5 South Jersey Guppy Group assumes no responsibility for any loss of fish.

6 All entries must have been born and raised in the exhibitors tank.

7 Fish will be judged with uniform black background lighting will be overhead fluorescent.

8 Judging will be according to IFGA standards. All decisions are final.

9 All entry fees must be paid at registration.

10 Fish will not be removed until 12:30PM on Sunday April 10, 1994 by a South Jersey Guppy Group member to the exhibitor.

11 All tanks and bowls will be supplied by South Jersey Guppy Group.

ENTRIES

SINGLE ENTRIES

Single male entries will be shown in 1/2 gallon bowls, 3/4 filled with water. A female may be added, but will not be judged. Single females will also be shown in 1/2 gallon bowls with 3/4 water level.

TANK ENTRIES

Consist of two matched males shown in a one gallon container. One female may be added but will not be judged.

BREEDER MALES

Consist of 3 matched males shown in 2 1/2 gallon tanks. Two females may be added but will not be judged.

BREEDER FEMALES

Consist of 3 matched females shown in 2 1/2 gallon tanks.

NOVICE CLASS

Open to anyone that has not won a first through fourth place in IFGA competition previous seasons.

JUNIOR CLASS

Open to anyone 15 years or younger.

ENTRY FEES

SINGLE ENTRIES (MALE AND FEMALE)
TANK ENTRIES \$5.50
BREEDER ENTRIES (MALE AND FEMALE)
JUNIOR AND NOVICE ENTRIES \$3.50

CLASSES

SEVENTY POINT

CLASSES

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HEARTLAND GUPPY CLUB

Seven Point International Fancy Guppy Association Sanctioned Annual Bowl Show
APRIL 30 - MAY 1, 1994

LOCATION

HOWARD JOHNSON LODGE
4300 South Walnut Street
Independence, Missouri 64068
816 373-8856

SCHEDULE

APRIL 30 1994
Registration 9:00AM-1:00PM
Judging 4:00PM-8:00PM
Hospitality Room: Consumption of judging
Results Registration Hospitality Room

SUNDAY

May 1994
General Public Viewing 9:00AM-12:00PM
Silent Auction 10:00AM-1:00PM
Debanching 7:00PM

SHOW CHAIRPERSON

Reginald Gay
P.O. Box 1000
Springfield, Missouri 65801
816 373-4606

SHIPPED IN ENTRIES

Billy Ryan
3028 West 84th Terrace
Lawrence, Kansas 66048
913 844-7894

OVER NATIONWIDE APPROVED

Shipped in entries must be pre-approved with correct entry fees and return postage included. No cashed shipments will be accepted. Fish without return postage will be returned. Auction. All Fish will be shown in 1/2 gallon bowls. SHIPPED IN CARE OF BETTY RYAN AT ABOVE ADDRESS. Shipped in entries must be received by 8:00 PM, Friday April 29, 1994.

ACCOMMODATIONS

Reservations should be made directly with Howard Johnson Lodge. \$10 373-6688, prior to March 8, 1994 to ensure placement within HEARTLAND GUPPY CLUB block of rooms and ensure room rates. Room rates One bed \$48.00, Two Double Beds \$88.00. King beds \$90.00.

DIRECTIONS

Take I-29 South to 470. East on 470 to Noland (Rt. 10). Hotel is on corner of Noland Road and 70 at top of east ramp.

ENTRY FEES

Single Entry\$ 50
Tank Entry\$ 50
Breeder Entry\$ 80
Junior Class Entry (Guppies or Tanks) \$ 50

AWARDS

BEST OF SHOW AND BREEDER ENTRIES
FIRST PLACE Plaques and Award Cards
SECOND PLACE Award Cards
THIRD PLACE Award Cards
FOURTH PLACE Award Cards

SINGLE AND TANK ENTRIES

FIRST PLACE Plaques and Award Cards
SECOND PLACE Award Cards
THIRD PLACE Award Cards
FOURTH PLACE Award Cards

CLASSES

DELTA TANK

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EARTHQUAKE + GUPPIES = DISASTER

By Davdene Tall
Newsletter Editor/Publisher
Pan Pacific Guppy Association

My grandiose plans for me and my gups in the second half of the current show season came crashing down upon me (literally) the morning of January 17, 1994 (a day that has forever altered the way I view certain aspects of life in "Incel town"). The gups, fishroom, computer homestead, etc. did not fare well through Southern California's latest bout of experiencing "Mother Nature" in all of her fury (earthquake).

Brief explanation: The bulk of my fishroom setup was in the den (with my computer, printer, scanner and facsimile equipment I utilize to design the *Guppy Roundtable*) which extends out over the carport (it is supported with three beams (skits)). I worked late on the computer the evening of Sunday January 16, 1994 and fell asleep in the den (bad timing on my part). When the earthquake "hit" I instantly knew it was bad evidenced by the glass that was exploding around me (in my heart, even though it was pitch black, I knew it was my guppy tanks that I heard breaking). As the earthquake continued and I tried (in vain) to exit from the den to a more secure area of the unit, I was repeatedly pummeled with flying debris: furniture, glass, water, etc.

It took me nearly two hours to dig my way out from the wreckage piled in front of the door (naturally the flashlight was in the kitchen and being that it was pitch black (electricity was out) and shattered glass was everywhere, I was gingerly removing the junk from in front of the door - desperately wanted to retain my fingers if at all possible. I thought they might come in handy for future *Guppy Roundtable* publication chores). To make a bad situation worse, I had removed my contact lens from

my eyes that evening for their weekly cleaning. Therefore, was attempting to extricate myself from the shambles of the den while I was blind-as-a-bat! (I am blind in one eye and can not see out of the other - your basic bad eyesight)

(Not ashamed to admit this earthquake scared the "heck out of me" (thought the den was going to collapse into the carport). The end result is (at least at this juncture) lost thirty-two tanks (twenty 10 gallon tanks and twelve 5 gallon tanks - broken, shattered beyond repair), hundreds and hundreds and hundreds of magnificent guppies (Managed to salvage approximately sixty fish - the remaining tanks that did not topple over had most of the water slosh out, the guppies were stressed out and continued to die off in "bunches" for weeks afterwards). We estimate over five hundred gallons of water poured out onto the carpeting in the den (plus one hundred pounds or more of gravel (yes, am that one-in-a-million bizarre guppy breeder that has (had) gravel and plants in most of her guppy tanks). Broke my left foot, cracked the fibula in my right leg and suffered bruises and cuts on my arms, legs and face (general mutilation of the body apparently caused by flying furniture and glass). I literally screamed out loud when I saw myself in the mirror the morning after the earthquake "hit" - was so banged up, would have been rejected for the lead role in "Bride of Frankenstein" for being too gory a pretty sight wasn't).

One Funny Note (yes, there is actually a funny note or two in all of this mess). At the time the earthquake "hit" only had a tee-shirt on, and when I realized it was a bad one, while frantically trying to get my pants on, I was praying to God to let the den hang on and not collapse into the carport until after I had my pants on (I am sure you are all familiar with the movie entitled "They Died With Their

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"Boots On" well, was bound and determined it was going to die if I was going to be with my pants on!

Part Two (of my misadventures with my pants): I was quite impressed with the fact I actually succeeded in getting my pants on in the midst of a 6.5 earthquake (recently updated from 6.6 by seismologists (have you ever tried to get your pants on in the middle of an earthquake? be assured it is quite a challenge). until

I wanted to contact various family members and friends after I finally extricated myself from the den to see how they fared during the earthquake. Inasmuch as the telephone lines were down around my home, I thought if I drove out of the immediate area, might succeed in locating a functional pay phone

(continued on page thirty-one)

(the sights I saw were awe-inspiring, enormous sections of several freeway overpasses, rendered by the sheer force of the earthquake to nothing more than broken, twisted masses of rubble smashed onto the streets below). succeeded in locating an operational telephone about four miles from my home. While I was attempting to place a telephone call to a close friend I happened to look down at my right leg and was nearly struck dead from mortification at the sight I saw!

There I was standing in front of God and everyone (by this time, quite a line had formed to use the pay phone) with half my right cheek (but) leg and thigh hanging out! I am telling you, could have died! Talk about a major blow to my modesty (apparently in my frantic haste to get my pants on, I had managed to initially shove my foot through the side of my pants causing an enormous tear down the side). Much to my relief quickly noticed, that after living through the tremendous force of a 6.5 earthquake, no one waiting in line to use the pay phone was paying particular attention to my state of disarray (in hindsight, I think Lady Godiva (fully disrobed with hair blowing wildly in the breeze) could have trotted down the street

on her horse and no one would have even noticed).

One "Amazing Story" Note (have you ever noticed, there is always an amazing story or "miracle" in every tragedy). I found one of my prized blue female guppies on the carpet amongst the ruins of the den at three o'clock in the afternoon (almost eleven hours after the earthquake "hit") she was barely alive, but she was alive. I gently placed her in a bucket of water and gently massaged her sides for approximately one minute, and she jerked! After several more minutes of quietly resting in the palm of my hand that was submerged in the bucket of water she swam out of my hand. Believe it or not, she is alive and kicking as I write this article (and acting like a pig she just might make an appearance on the show bench next month).

Needless to say, I continue to be on a "bigtime bummer" over the loss of my magnificent guppies. Immediately after the earthquake "hit" and the devastating toll Mother Nature's temper tantrum had on my guppies became apparent, I was not sure I had the heart to start up again after being "wiped out" for the third time in one year (lost my guppies

unattended in January 1983 while I went on a two week skiing vacation, came back to a horrific bacterial/fungal infestation which resulted in a massive die-off (salvaged thirty guppies), sent twelve of my remaining fish to a show in Spring 1983 and they were exposed to a lethal case of columnaris (flexibacter) which, upon their return home, ran rampant through my fishroom (salvaged about twenty fish after that fiasco).

As the days wore on the beauty of my remaining guppies once again captivated my heart. I find I am pulling myself up by the proverbial boot straps and proceeding full steam ahead, caught up in the wonderment of breeding fancy guppies (although most of my grandiose plans have been postponed until the beginning of the new show season).

Have I learned anything from all of this? Yes! Only nuts put gravel and plants in all of their guppy breeding tanks. An overly harsh assessment of the raging "to use or not to use" gravel in guppy breeding tanks controversy, you say? Have you ever tried to suck up a hundred pounds or more of gravel from soggy wet carpeting? Trust me, it is not a pretty picture.

FINAL OBSERVATIONS

Prior to January 17, 1994 4:31 A.M.:

---I used to sleep in a tee-shirt (see above). Now, find myself practically sleeping in three-piece business attire.

---I loved driving my cars on the Southern California freeway systems. Now I am frantically looking to purchase a horse and buggy.

---I closely followed the stories of Lorena Bobbitt, Tonya Harding, Michael Jackson and the Menendez murder trial. Now I am reading "On Man in the Universe" by Aristotle.

---I enjoyed twenty-minute showers. Now a sponge bath takes too long.

---I liked putting vases, trophies, plates, and framed photographs in my bookcases. Now I am seriously thinking of living in a teepee.

---I used to laugh uproariously during earthquakes. Now I have decided to reserve the word "awesome" only for describing the power of nature.

---I thought people who live in cold climates were idiots. Now I am sending them candy and flowers in exchange for real estate ads.

---I thought post-traumatic stress

syndrome was for weaklings. Now wish could stop shaking and quaking in my boots.

---I thought chimneys were quaint. Now I think the same thing but only when I'm wearing a hard hat (gave serious thought to purchasing an armored suit, but decided that was overkill in the earthquake preparedness department).

---I thought families with earthquake-survival kits were fanatics. Now I sleep fervently clutching a flashlight, hard hat, peckax, and transistor radio while using a knapsack filled with a first aid kit and five day supply of survival rations as a pillow (you get the general picture).

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GUPPY ROUNDTABLE

THE OFFICIAL MONTHLY PUBLICATION OF THE
INTERNATIONAL FANCY GUPPY ASSOCIATION

VOLUME 1 ISSUE IX

PUBLISHED BY THE PAN PACIFIC GUPPY ASSOCIATION

APRIL 1984

DECAPSULATION OF ARTEMIA CYSTS

By Lee Flanders
Brooklyn Aquarium Society

I started about two years ago, was browsing in my local pet shop when I came across this new brand of brine shrimp. Brine shrimp without shells? It was true. No more messing around with the alphon. Just hatch and serve. I liked that. Never again would suffer from the amber assumption, if unsightly empty eggs float in my tanks. Talk about a user friendly product - it's the joy of it all.

I was headed for the cashier when I froze in my tracks. I had caught a glimpse of the price. Turning around, I promptly placed the can on the shelf where I found it. Left the store muttering the price over and over in shocked amazement. So began my search for the magic recipe.

Sometimes it seemed as if it would have been easier to learn to spit straw into gold, or at least people encouraged me to believe so. Well folks, let me tell you, it just ain't so. All you need to know is where to look. Once found, in a matter of moments, the beautiful rays of knowledge burned away the dark clouds of mystery and have been using this method ever since. Over the past six to eight months it has

always worked like a champ. The only thing that amazes me more than watching the shells dissolve is that I have never met others who use the process.

A REMINDER

Before getting into the details, I would like you to keep in mind a few thoughts.

1. This is a hobby - so have fun.
2. From this point on, you no longer need to "do it right the first time" relax.
3. You are going to love this - I am know it.

THE PROCESS (Here is where the fun starts)

To get set up, you will need an all supply for mixing a glass container (I like to use a pint canning jar with the ounce marks right on it) two

(continued on page three)

WHO SAID GUPPIES ARE FRAGILE

By Mark F. Batel
Editor from IFGA Bulletin, May 1983

Now I know what to do when my car ruts out - turn it over and use it as a fish tank! On second thought, the neighbor would not appreciate it so - will just have to stick with glass aquaria.

My well water is incredibly rusty. I have a particulate filter on my soft water line which really fills up quickly. As an experiment, I decided to find out how bad rust is for the fish. I took a plastic whipped cream tub (about thirty ounces in size) and emptied all the rust particles from the filter into it.

I added several ounces of old gravel, some decayed plant leaves, an ounce of "Dick Boyd's Chem-Pure" and a few "Bio-Chem Beads" just to give the fish a fighting chance. I put one adult and one week-old fry in this soup and have not changed the water at all in three months. Both fish are alive and well, and the fry is growing almost as fast as its litter-mates. This, despite the fact that regularly overfed one big meal a day at first, and then skipped food altogether for over a week. I even threw in a sick fish which died and was not removed.

I just can not kill these guys. Who says guppies are fragile?

INSIDE THIS ISSUE

4

GETTING THE MOST FROM YOUR FISH ROOM

By Peter Lewis

This is a guide to all the things you can do to make your fish room function more successfully.

9

AUCTION TIPS AND HANDY HINTS

By Bruce Ash Farber

Learn how to make your next fish auction a more pleasant and productive experience.

10

HOW TO RAISE EARTHWORMS IN YOUR CLOSET

By Jeffrey Gaudin

Earthworms are a super live food for most, if not all, tropical fish, including fancy guppies.

12

LINE BREEDING THE GUPPY

By William Thompson

Gains information on line breeding fancy guppies to achieve optimum results.

15

GUPPY CENTERFOLD

Photographs Courtesy Of David Weiler

You asked for it, you got it! Fourth monthly installment of "Guppy Centerfold".

17

FRESHWATER AQUARIUM BASICS

By Wilbur Whitford

Learn why an aquarium is easy to set up and maintain, if you have enough information.

21

WHAT YOU SHOULD KNOW ABOUT GUPPIES

By Warren Burke

Analysis of techniques and conditions in which guppies may be brought to their physical fish.

22

QUARANTINE

By Bryan Burgstalle

Quarantine: An easy-to-use system before introduction into an established aquarium.

23

PRIMING AND BUILDING SHOW GUPPIES

By Richard Eisenmann

As the show season quickly approaches, learn what to do in ready fish for the show season.

24

MESSAGE FROM THE PRESIDENT

By Jim Alderson, D.V.M.

If you have suggestions, write them down so they may be presented in a timely fashion.

24

MEETING AGENDA

By Jim Alderson, D.V.M.

International Fancy Guppy Association meeting agenda for May 21, 1984.

26

GATEWAY GUPPY ASSOCIATE SHOW INFORMATION

By Gary and Ross McCraway

Detailed information regarding third show of the second half of the current show season.

27

CLEARING HOUSE

By Stephen Kautler

Quintessential of available breeding stock for sale from the country's top breeders.

28

THE SEARCH INTENSIFIES

By Davdine Tait

The recent appointment of a new Publisher Director intensifies the search for new members.

29

GUPPIES FROM THE PAST

By Jim Alderson, D.V.M.

Basic breeding information on what results to expect from various crosses of guppies.

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The Guppy Roundtable is published monthly

except January by:

Pan Pacific Guppy Association

Business Office located at

11003 Cyber Boulevard

Cyber City, California 90230

Attention: Mail is Second Class Postage

Rate is pending at Cyber City, California

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For subscription information contact:
Pan Pacific Guppy Association
3618 Maritime Avenue B
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Subscriptions are \$20.00 per year for eleven issues. Foreign subscribers must add \$4.00 per year. Please use international money order only. Allow six to eight weeks for delivery first issue.

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ounces of regular old-fashioned liquid bleach (Clorox) one tablespoon of white vinegar and of course one teaspoon of your favorite brine shrimp eggs with their shells.

Start by adding three ounces of cold fresh water and one teaspoon of eggs to the glass container. Gently aerate for one hour to rehydrate the eggs. At the end of the hour pour in two ounces of liquid bleach. Continue to aerate or stir steadily as all the eggs now need to be kept in constant motion for the next three to five minutes. At this time you will see the eggs changing from brown to a pinkish orange or golden color. Foam will start to build up on the solution. That is because the shells are being melted away.

After three to five minutes (you may go longer if need be) pour off the shell-less eggs into your fine mesh shrimp net and gently rinse

under cold fresh water until you can not smell the bleach. Mix one cup (eight ounces) of cold water and one tablespoon of white vinegar in your glass container and soak the eggs (net and all) in it. This will get rid of any leftover bleach (maybe for one minute).

Take the net and eggs out, pour the mix back through the net and rinse gently under cold fresh water. Hatch the eggs as you would normally.

So simple. Isn't it amazing? I have found through my own trial and error that if you are going to decapsulate more than one teaspoon of eggs, its best to increase all things in proportion.

Besides the obvious benefit of not having "empties" to deal with, the eggs without the shell are easy to digest as fish eggs. No longer worry about fry getting a gut blockage from eating the "duds".

or "empties". The eggs are sanitized, no more worry of unexpected visitors or disease to your salt water fish fans.

So give it a try. It really does work and is just as easy as I have explained it. If you have any doubts about using this technique please follow up by reading the information listed in the references. When you are finished I know you will say "Isn't it amazing".

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TIP OF THE MONTH

By Diane Elton
Ontario Aquarium Society

When you are cleaning an aquarium make certain that all of the electrical appliances are turned off. This is particularly important for heaters.

If a heater is accidentally broken by bumping it against a rock or the tank glass during tank cleaning, it will create a dangerous shock hazard.

You should also make certain that all aquarium appliance cords (filters, heaters, lights, loop below the level of the wall outlet into which they are plugged. Such "drip loops" will prevent water and salt spray from running down the cord and into the outlet.



Submitted by Tom Walderhoof

GETTING THE MOST FROM YOUR FISH ROOM

"There are a number of things you can do to make your fish room projects more successful"

By Peter Lewis
Reprinted With Permission
Aquarium Fish Magazine January 1990

Although there may be several reasons why a hobbyist decides to build a fish room, the primary impetus for setting up a collection of assorted tanks and fish is the desire to start an intensive breeding program. With careful planning, such a program can be quite successful. A major consideration is being able to provide food for the fry that is the correct size and of sufficient quantity for the number of fry that are likely to be produced.

If you plan on breeding egg layers or small livebearers, you must contend with "drops" or "spawns"

that regularly produce more than one hundred fry. The fry of these species are minute in size. The most suitable first food under these circumstances is infusoria, which must be obtained from cultures started prior to the breeding program in anticipation of success. It is very depressing when fish you have been patiently waiting to breed decide to do what comes naturally at the very time when you have not suitable food available.

Many excellent articles have been written about the culturing of various strains of infusoria. One of the suggestions usually given is to try a few trial runs at culturing infusoria before the life and death of newly born fry are at stake. In a pinch, if fry do arrive before you have

active cultures going, it is possible to make do for the first few days with what's available. For example, immediate sources of infusoria can include a bird bath, old sink, bucket or even a trash can in the yard. Generally, this water is green and teeming with infusoria.

Indoors, one source that might be available, if the aquarist is lucky, is a vase of water with flowers. If the water is at least three days old, it will be a source of infusoria. Make certain, however, that no chemicals have been added to keep the flowers fresh.

While experimenting with infusoria cultures, you should investigate various starting media for the cultures. Many types of vegetable matter can be used, such as banana skins, potato peels, crushed lettuce leaves or chopped hay. My personal preference is crushed lettuce leaves which for me has proved to be the quickest and cleanest media. By experimenting, you will discover the method that works best for you. A

(continued on page five)

SOUTH JERSEY GUPPY GROUP AUCTION ANNOUNCEMENT

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word of caution, however, wait until a culture has gone through the stage when it tends to smell before removing infusoria from it.

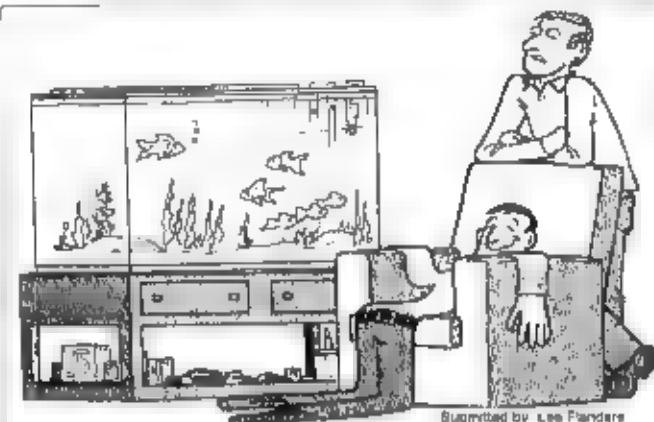
The addition of a low-power microscope to your fish room will yield many benefits. For example, by examining infusoria under the microscope, you will soon be able to distinguish the different inhabitants and learn to recognize specific micro-organisms by comparing what you have cultured with examples in appropriate textbooks.

The microscope can also be useful in a breeding program. By examining one of the fry from the spawn each day, it is easy to determine when the mouth is formed and the yolk sac is absorbed. It is useless feeding the fry until their mouths have developed.

Feeding problems are somewhat simplified when breeding livebearers or egg layers that have young large enough at birth to consume foods such as newly hatched brine shrimp, Daphnia or cyclops. A batch of brine shrimp can be hatched in twenty-four to thirty-six hours depending on the strain of shrimp and the temperature of the water. If the breeding program is timed to coincide with the spring or summer months, a collecting trip in many areas of the country for Daphnia will yield an excellent first food for the target fry.

To manage a fish room as economically as possible, it helps to be able to supplement the excellent range of commercially prepared foods with alternative foods. My favorite sources of other kinds of food for aquarium fish are butcher shops and fish markets, where high protein foods such as beef heart, liver, roe, shrimp, white fish and crab meat are available. Each of these foods can be fed with little preparation short of reducing them to suitable size for feeding. The messiest to

(continued on page six)



Submitted by Lee Flanders

"Of me, is watching fish really as relaxing as they say?"

Submitted by Nick Mead

"Hey, you will love it! All it needs is some gravel, a few plants, and maybe one of those miniature human skeletons."



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des, with its beef heart, which must be completely de-veined before using. Because beef heart is high in fat content, it should be fed sparingly anyway.

The recipes for "home made" fish foods appear regularly in books and magazines and are often both economical to make and highly nutritious. Using a blender and a stove, hobbyists can experiment in their quest to create the perfect food for their fish. It is often prudent to use an old pan or dish in which to try the latest creation, because the smell and aftermath when using good cookware can sometimes result in a permanent ban from the kitchen.

A recipe that has remained a firm favorite of mine over the years is the well-known "Gordon's Formula" for guppy breeders. I have modified it to make an excellent high-protein mix that I have fed successfully to

catfish and guppies for years. The recipe contains:

- 1 lb. white fish, such as scrod
- 1 lb. de-veined beef or lamb liver
- 2 lbs. shredded shrimp meat
- 1/4 lb. egg yolk-based baby food
- 2 lbs. strained spinach (baby food)
- 1/4 lb. toasted wheat germ
- 1/4 lb. instant oatmeal cereal

Cook the liver and chop in blender. Mix the ground liver with the remaining ingredients in a bowl. Squeeze the mix through a piece of fine muslin to remove any excess water and then run the mixture through the blender in batches to form a paste. The paste is then placed in ice cube trays in the freezer, which are defrosted and used as needed. Both fry and adults will take such food with excellent results. One refinement you may wish to make to the recipe is to include twenty to thirty multi-vitamin tablets. Hobbyists who are

primarily interested in showing their fish will find that a diet consisting of the above recipe in conjunction with earthworms is an outstanding growth regimen.

There is also a variety of live foods available within the hobby that, when used correctly, provide a continuous source of food throughout the year regardless of the weather outside. The fish room is an excellent location in which to maintain cultures of live foods, including microworms (*Anguilla shusiae*), grubs, worms (*Enchytraeus buchholzi*), maggots, earthworms, cyclops, white worms (*Enchytraeus albidus*), tubifex worms, blood worms, glass larvae, fruit flies and mosquito larvae.

When trying new foods, it helps to let the fish go without food for a couple of days before introducing the experimental food into the tank.

(continued on page seven)

If the new food is not eaten at once, do not be discouraged. Leave the food in the tank for an appropriate amount of time to allow each fish to sample your creation. Uneaten food can be removed and the procedure repeated the next day until the fish realize that what is being fed is good for them.

I prefer to aquascape my tanks including my breeding tanks with varying amounts of rockwork, waterlogged wood, gravel and in some instances, plants. In some setups, such as tanks with African rift valley cichlids or the secretive dwarf cichlids of South America, a suitable arrangement of rocks is an essential part of successfully maintaining these species. Over the many years I have been in the hobby, I have always regarded the search for pieces of rock of the correct color, shape and size to be an on-going aspect of fishkeeping.

Streams, rivers, quarries and caves are excellent sources for rocks, and I have spent many pleasant hours, often with my daughter, searching for suitable materials in these types of locations. Frequently the search is conducted with a specific species of fish or size tank in mind. Basically, the rocks should not be too large or heavy for the tanks. The source of the rocks should be unpolluted (not downstream from a chemical, plant or paper mill); the rocks should be made of inert materials such as granite or slate and they should be free of tiny holes that can trap food and result in polluted aquarium water.

Do not pass up the chance to accumulate a supply of clean, natural, riverwashed gravel if you can locate a local shallow gravel bank from which you would be allowed to remove a quantity of gravel for your fish room. A few quick calculations will soon show that even as little as one inch of gravel in two or three dozen tanks will require 200 to 300 pounds of gravel. Generally

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Located the keys to mastering the complexities of guppy genetics, or food recipes guaranteed to raise LARGE guppies, or made an amazing discovery in guppy breeding techniques? Do not be shy about sharing the secrets of your success: your articles are of paramount importance if we are to maintain the reputable quality of our newsletter. Whether you are an advanced or novice breeder, every guppy enthusiast has at least one article rattling around in their repertoire of tricks. Guppy Roundtable is rapidly becoming the most effective forum for guppy breeders to meet colleagues and swap their best tips. Write an article for publication in the Guppy Roundtable, the official monthly publication of the International Fancy Guppy Association. The continued success of your newsletter depends on it.

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LEARN THEIR SECRETS OF SUCCESS

Feeling overwhelmed when muddling your way through mastering the complexities of guppy genetics? Curious about the latest techniques, technology and trends of breeding fancy guppies?? Are you totally befuddled over what to feed your guppies to ensure optimal growth potential??? Submit your questions for thought provoking answers by Paul Gorski, Judging Board Chairman and Stan Shubel, Former Judging Board Chairman in the *Some of This, Some of That* column of Guppy Roundtable.

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river or tidewashed gravel is an ideal substrate because it lacks any sharp edges, making it suitable for bottom-dwelling species such as *Corydoras* catfish and other whiskered species that have sensitive barbels that can be injured by sharp-edged gravel.

The number and sizes of tanks

should be dictated, to some degree, by the breeding program you intend to embark on. Try to consider the effects of a planned breeding schedule by using a worst case scenario in which each breeding pair trio or harem will produce fry at the same time. Keep in mind that even medium-sized fish

(continued on page eight)

can easily present you with 400 to 500 fry per spawning, and that well-conditioned pairs can spawn two or three times per month.

Clearly, you will need to have holding tanks of the appropriate sizes in which breeders can be maintained while resting several breeding tanks that can be properly set up for the species you intend to breed and many large rearing tanks for growing each successive generation of fry. As the fry grow, they will need to be transferred to larger quarters to avoid overcrowding. Without planning you will not be prepared for your own success at breeding fish.

When it comes to fishkeeping, the most difficult problems result from diseases. Many of the more common bacterial and parasitic diseases can lead to the complete loss of every fish in a tank. It is always better to prevent disease rather than face the prospect of trying to diagnose and treat it.

Always routinely quarantine any new fish you acquire. The quarantine tank should be well lit, sterile, easily accessible and only

sparsely decorated - enough to make the fish feel secure. The length of the quarantine is essentially dependent on the species of fish and its source. Wild-caught specimens require a longer quarantine and closer observation than do fish from healthy domestic stock obtained from a dealer or hobbyist.

Despite your best efforts, fish occasionally become sick, and it is wise to maintain a small, carefully selected stock of medications to deal with such situations. Tried and tested chemical medications, such as acriflavin, formaldehyde, formalin and copper sulfate, are much preferable to antibiotics which have a limited shelf life and are often not very effective against many aquarium diseases.

A fish room makes an excellent controlled environment for fishkeeping. Good water quality, stable temperatures and uncrowded tanks all contribute to maintaining healthy fish. I hope this article on fish rooms has been valuable in helping you plan for and build your own room for the fish.



Submitted by John Clay

"This is Laura Palmer. She thinks guppies are wonderful too."

ammonia and nitrite that result from fish wastes.

Tired of having to clean those unsightly, formerly clear fish tubes on your undergravel filter? Purchase dark-colored plastic conduit (available in gray, dark gray and if you are lucky, in black). Pick a shade that blends in well with your background. For example, black tubes work particularly well in Plexiglass aquaria with black backgrounds. The diameter of the conduit can easily be ground to fit the filter opening by using a bench grinder and rolling the tube as you grind. If you cannot find tubing of the correct size in a suitable color you may be able to find the appropriate color in larger-diameter tubing. This can be simply slipped over the filter lift tubes.

A minnow strainer fastened over the intake of your Magnum filter can prevent your fish from becoming victims of their own curiosity about the nature of filter intakes (ever noticed how inquisitive your little gups are)? I found out the hard way that even a tough-skinned pufferfish is no match for a Magnum filter intake.

When changing a medium such as carbon or flots in a filter (box or power), it is a good idea to thoroughly rinse out some of the old medium (in chlorine-free water) and replace it in the filter. This will provide a "seed" of the *Nitrosomonas* and *Nitrobacter* bacteria that degrade the harmful

GUPPY GAMBITS

By Bill Gotsline
Greater Seattle Aquarium Society

Having problems with guppy fry being sucked into your back filter intake and being puffed? Hagen AquaClear sponges for back filters (for example, sponges for the AquaClear 210) can be cut to make filter strainer covers. First cut the filter sponge in half. Then, cut a slit in the top of one sponge half the same diameter as the strainer you wish to cover. End the slit about 1/2 inch above the bottom of the sponge. Slip the sponge over the strainer.

AUCTION TIPS AND HANDY HINTS

By Rose Ann Fazio
Central New York Aquarium Society

The auction season is upon us and will be in full swing as the weather gets warmer. These events, hosted by local societies, have become a mainstay in the hobby community as a means for clubs to raise funds to help offset the expenses of their activities for the upcoming year.

Whether a club auction is the "capping off" event for a show or a "hand alone" one day affair, you can always count on getting the opportunity to buy something unusual to add to your home tanks. Anything remotely connected with the hobby can be found at these sales and most times can be bought at bargain prices.

If you have attended club auctions in the past, you know what to expect, but attending a club auction can be a confusing ordeal for the first time shopper. After attending my fair share of club auctions and making some costly mistakes, I

thought I would pass on some of the things I have learned on how to shop at these events.

First try to go early. The doors open one to two hours before the actual bidding begins so that the buyers can register, get their buyer number and inspect the goods being offered for sale. Consider this time well spent. Take a pencil and paper or a small notebook and jot down the numbers and a short description of the items you are interested in bidding on. Just by chance, you may find a breeding pair of a species of fish you have been longing for or perhaps a bag of fry of the fish you thought you would never see in your area. When the bidding gets underway, you will never remember exactly which bag of fish you wanted and this is where your notes will come in handy.

When breeding pairs or bags of fry are being put on the auction block, chances are good that the breeder/owner of these fish is on the premises and it would be a good idea to ask him out, ask a few questions and jot down any

information he can give you on how he maintains the species. I have learned that it is a good idea too to set limits of how much you want to spend on each item that you just can not live without, and include it in the notes you take before the bidding begins. In the excitement of bidding, it is very easy to forget that you are spending all your money on this one bid and will not have anything left to get that other "must have" item.

Second, take along a book on fish identification. If you are like most of us, you know you have seen that fish before but can not quite remember what the requirements are for keeping the species happy and healthy. You do not want to end up buying something that will grow to a size that you will be unable to accommodate in the very near future or that will entail setting up a separate tank with special water conditions when you get home. The bags of fish being offered for sale should be labeled with the scientific name along with a common name where possible. If they are not, ask what the fish are or at least what family they belong to so that you can attempt to do some research before buying.

(Continued on page ten)

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out your money. Once you bought it, it is yours and it will be too late to learn what you need to know about the animal in question.

As with any other purchase, it is best to be prepared and knowing when sexual maturity is reached and the size of the adult animal can be very important. If the fish in question usually reaches breeding size at six months, and this bag of fish is close to the right age but is only one half the size, you can almost bet that these will not be the best future breeders for you. The early stages of a fish's life are the most important as far as development is concerned and a poor start is difficult to reverse. Some other things to look for are any signs of disease, frayed fins, deformities, poor growth (usually noted by poorly large eyes in comparison to the rest of the head) and abnormal color or markings. The water the fish are in can be an important clue as to how the fish

were maintained in the seller's tanks. You would expect young discus to be in dark water because of peat filtration, but livebearers are in the same color water, you can almost bet it is due to lack of regular water changes on the seller's part.

All said, you can expect to find every type of equipment connected with the hobby at these sales, some new and some used. Again, know what you are buying. Note the information on the seller's label and test the article, if possible. Most times only a minor repair or good cleaning is all that is needed to get a filter into working order, but when it comes to lights, you had better know what you are doing if you are going to attempt to repair them. As far as know, submersible heaters cannot be repaired as they are sealed units with no replaceable parts. Air pumps are usually not much of a problem - the diaphragms are what

breaks down first and they can easily be replaced at a minimal cost. That is, unless the air pump is of a vintage that is no longer being sold on the retail market. You can almost bet that if a piece of equipment is no longer available at your local pet shop, the parts will not be either and you would be better off throwing your money directly into the fish can than buying something that cannot be repaired. And remember a bargain is not a bargain if it is going to cost you more to get the item into working condition than it would to buy the item brand new from your local dealer.

There is little doubt that you are going to buy something at every auction you attend. Plan ahead and get some tanks ready to receive your new fish several days before the sale. Also be prepared to bring those live fish and plants home in something that will make

(continued on page eleven)

HOW TO RAISE EARTHWORMS IN YOUR CLOSET

By Jeffrey Bader
Ottawa Aquarium Society

Earth worms, some consider to be one of the best live tropical fish foods available to the serious guppy breeder. Whether that is debatable or not is not the target of this article, the target of the article is simply how do I raise earthworms.

Materials Needed:

- 1 Rubbermaid plastic box at least 2'x 3'x 5' deep
- 1 bag peat moss (80% volume of storage box)
- 1 bag Cow Manure (20% volume of storage box)
- 1 cup Dolomite lime
- 1 squeeze type sprayer
- 1 lb ground chicken corn scratch

Place the cow manure and the

peat together in the box along with one cup of the dolomite lime. Mix it well and add water slowly. Mix the water in very well. Add only enough water to the peat mixture so that only a drop or two comes out of it if a handful of it is squeezed tightly. Any more water than that and the mixture turns to mud very quickly and that is not a healthy environment for our worms.

Now add your worms. You can obtain red worms easily from magazines like *PLED* AND *STREAM* or other fishing magazines. Do not order night-crawlers. They need a deeper environment to thrive and reproduce (six inches deep). The best deal are bedrun (means all sizes) red worms. \$20.00 should get you between 2000-5000 worms and that way you can establish the colony with babies.

to breeders. Mix the worms in gently (or set them on top and they will work themselves in - they hate light).

Feed the corn meal lightly once or twice a week by sprinkling it on top and then spraying it gently, being sure to NEVER get the soil any wetter than described earlier.

To feed the worms to your fish it is generally better to chop them up to 1/4" - 1/2" sections and drop them in on your fish. Use a pizza cutter and just run over them several times. Don't worry about the slime, I personally feel (un-scientifically) that the enzymes spewed by a chopped worm are good for the fish.

Do not be surprised if a fish that ate a whole worm today has what appears to be a stringy faces tomorrow. It is the outer skin of the worm, not heximila or some other pathogen. This is why I recommend chopping them up.

their trip a little more comfortable. A picnic cooler is an excellent substitute for a fish transporter and will help keep the fish at an even temperature and in the dark atmosphere needed to calm the excited animals. Try to remember that the fish you buy are under a lot of stress because of all the times they have been picked up, looked at and put down again. Once they are yours, it is best to put them directly into the container and keep them dark until they reach their final destination. This will help slow their metabolism, calm them down and make the trip home much more successful.

Once you get your purchases home, treat them with a little extra " TLC " and acclimate them slowly. Be sure to let them settle in their new tank before attempting to feed them. Disturb them as little as possible for the next couple of weeks and do not move them around from tank to tank because you were unprepared, bought too much and plunked them into the first tank you could find with the intention of moving them tomorrow.

My last tip probably should have been the first. Know the rules of the auction. Bid at the proper increments. If the limit for bids is at \$1.00 increments and you continually bid at \$.25 increments, the auctioneer is not going to appreciate it very much. Make your intentions clear and let the auctioneer know that you are indeed bidding on an item. During the bidding, you can ask to see any item up for sale by having a runner bring it to you for closer inspection. By all means, exercise that right to refresh your memory but do not take forever to look over the goods. This could not only hold up the auction but could cause you to miss out on the bid altogether. Remember, while you are looking others are bidding, and someone else could win your prize.

Be polite. There is usually more than one bag of a given species

being offered for sale, so you will have a fair chance of winning the fish you want without stepping on someone else's bid. Try to stay within your own set limits and not overspend on any one thing. Doing so would prevent you from enjoying the rest of the auction. Pay attention. Take it from me, it is very easy to get distracted during the enthusiastic atmosphere of the auction bidding and there have been times when I actually bought something that I had no intention of buying because I was not paying close attention to what was going on.

Plan to pay for your purchases in cash. Most tropical fish clubs frown on personal checks as a method of payment because they are small organizations that can ill afford the bank charges for bounced checks. Some auctions are run so that you pay for each item as you buy them and some are run so that you are allowed to run up a tab and pay your total bill at the end. Either way, cash will make settling your bill that much easier for everyone involved in finalizing the financial aspects of the auction. If you are allowed to "bid now, pay later," keep an accurate running tally in your notebook as to what you are spending. This could avoid unneeded confusion and embarrassment at the conclusion of the auction because you ended

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ATTENTION PHOTO BUFFS

Searching for anyone with Black and White or Color photographs of fancy guppies that would enjoy sharing their photography talents with the leadership of the Guppy Roundtable. Photographs may be pictures of award winning specimens at International Fancy Guppy Association sanctioned shows or photographs of guppies in "fishroom" setups. Unless otherwise requested, submissions become property of the Pan Pacific Guppy Association. Photographs artwork will be duly credited in monthly Guppy Centerfold section of the Guppy Roundtable.

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up spending more than you thought you did!

If you are reading this article, you are more than likely a member of an aquarium society and will have no trouble finding enough auctions and shows to fill your weekends. When you do attend one of these events, either sponsored by your own local club or that of a sister organization, try to bring a friend who is not yet familiar with the activities of aquarium societies. There is always room for one more and who knows, your friend may just become a member and could be next year's auction chairman.

Have fun and hope to see you at an aquarium society auction.

LINE BREEDING THE GUPPY

By William Thompson
Southwest Aquarium Society

In all fishdom there is nothing quite like the guppy. This tiny creature is bred and developed by both the rank amateur and by the advanced hobbyist. These two classes breed them with different objectives, of course, but it is still the same tiny fish of many purposes.

Guppies do not require a lot of space but bear in mind that all fish are happier when they have plenty of space. For this reason we recommend that they be kept in a ten gallon or larger aquarium. The water in this aquarium should be slightly alkaline. Old water is desirable but not essential.

You will find that the guppy reacts very readily to temperature changes. Any sudden rise or fall

will weaken the fish and may induce disease. The larger tank will nearly eliminate this possibility of course. Optimum temperature for the guppy is described as one between seventy and seventy-eight degrees Fahrenheit.

The guppy is also easily suited to foods. Any prepared variety will do, although it is best not to stick to those containing a high percentage of animal meat. Shredded shrimp heads the list of prepared foods. Other suitable foods are finely chopped beef heart, chicken liver, clam, lobster or salmon or of course the live foods: worms, daphnia and brine shrimp.

Probably the questions asked by most beginners deal with the absence of color in the female while the male is so colorful or how many young the female may have at one time, and how are the young born.

In answer to the first, although the female bears little or no color herself, she is equally important with the male in determining the coloration of the male offspring. Like birds and mammals, this lack of bright colors is probably protective since tests have proven that coloration identical to that of the male fish is latent in the female, and only an injection of male hormone is needed to bring out these colors.

The number of young offspring born by any one female varies with the age, size and condition of the female. Average broods may run between twenty and sixty.

Young guppies are not born in the same sense that mammalian young are born. While in both cases the eggs are fertilized and developed within the female, the similitude ends here. The female mammalian nurtures the developing embryo as it grows, and the offspring is much larger by comparison. The eggs within the female guppy, however, receive no

(continued on page thirteen)

PASTE FOOD FOR GUPPIES

By Philip J. Lipt

I believe this to be an extremely good paste food for all fish, not just Guppies. I have noticed an appreciable increase in the size of my guppies (both males and females) since feeding this mixture to my fish once a day. Through the years I have changed some of the quantities and added the Knox gelatin. This is the kind of recipe that lends itself to everyone's idiosyncrasies. Another thing that can be done with this type of recipe is to throw in any flake or other foods your fish have refused to eat.

The cost came out for me to be approximately \$7.00 a pound, which is much cheaper than you can buy flake food for and I think this is far superior to flake food. Try it, your fish will love it, mine do.

INGREDIENTS

- 1 One lb. fresh fish (white meat)
- 2 One lb. fresh scallops
- 3 Two lb. fresh shrimp (remove most of the shell)
- 4 Six oz. Tetra Doro-min
- 5 Six oz. wheat germ (plain)
- 6 Three large raw eggs
- 7 One 14 oz. can of peas (no salt added)
- 8 Two tablespoons of bone meal (garden supplies, make sure it is pure bone meal with no additives)
- 9 Eight tablespoons spirulina powder (found in some health food stores)
- 10 Four tablespoons powdered vitamins ("Alt-1" from a health food store)
- 11 Four packages of Knox gelatin

The above ingredients will make approximately five and one half pounds of food. The consistency will be too thick for a household blender, so use a food processor.

You will need to add small amounts of water so the processed food can be all red together in a large bowl. Do not add any more water than is necessary. The wheat germ and the Tetra Doro-min will need to be presoaked. Use as much water as they will absorb. You will have to process the ingredients in small enough amounts to insure they are all completely chopped up. Then make sure to carefully mix all processed ingredients in a large bowl. When all the ingredients are thoroughly mixed, add the gelatin per the package instructions and then package the mixture for freezing.

Ziplock bags are excellent for storing the food in the freezer. After filling the bag with enough mixture to make about an eighth of an inch thick package, close all but one corner of the bag and force as much air as possible out through the open corner while flattening the food.

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nourishment from the female. The embryo simply develops within her until the yolk sac is absorbed. Then the fry are born.

It is interesting to note that the viviparous fishes, those which bear young in the manner described above, bear relatively few large and well developed young as opposed to the thousands in many cases spawned by the egg layers. Here surely is protective environment at work.

Good guppies do not just happen. They are the product of months, even years, of extensive research and development. No person who is not prepared to be patient painstaking in his methods and ready for disappointment should endeavor to line breed guppies, or any other fish for that matter.

One local guppy fancier has explained the following method to the writer. At the outset to fix his strain, he takes the best male from the first batch of fry (first generation G-1) and breeds him back to his original female. He then takes the best six females from the same batch and breeds them back to the original male. The resultant spawning will be the second generation of young (G-2). Once again the best male of the brood is bred back to the original female (G-3). This operation is repeated once again to produce the fourth generation of fry (G-4).

This whole procedure serves one purpose: to fix the strain and is called inbreeding, as is all close breeding between father and daughter or mother and son. This inbreeding is the best means of developing and establishing a strain, but this advantage is not gained without risk. The risk of greatly weakening the strain. By selecting vigorous offspring, this may be partially offset.

Having established his strain, this breeder then proceeds to line breed his fish in a way that emulates the

(continued on page fourteen)



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basic principles laid down by Gregor Mendel, one hundred years ago. All guppy breeders, whether they are conscious of it or not, utilize these laws of nature that Mendel discovered so long ago.

Since all guppy breeders use Mendel's Law, then it will help all concerned to know the rudimentary principles of heredity.

All living things exhibit influence of two major sets of characteristics. One of these is environment and the other is innate biological make up. Environment exerts its influence from outside and consequently has no place in this discussion. However, biological influences exert their control from within and are primarily transmitted from generation to generation by hereditary factors called genes. This is done in all living things and results in the appearance of specific traits in an individual fish.

Mendel laid down three basic laws. These are defined as follows:

The Law of Dominance

When two pure bred fish with contrasting characters are cross bred, all of the offspring of this mating will show only one of these two characters. The character that appears in the first generation is

called dominant and the other character which is invisible is termed recessive.

The Law of Unit Character

The various characters or traits that appear in an organism are transmitted to the offspring as distinct individual traits without being changed or lost in any way.

The Law of Segregation

The hidden, recessive character in a hybrid organism may be segregated in a later generation. When two hybrids are mated, the resulting offspring comprise from any unit character: pure dominant - twenty-five percent; hybrid offspring - fifty percent; and pure recessive - twenty-five percent. This is frequently called the 1:2:1 ratio. Successive generations of hybrids yield the same ratio.

We will deal first with the Law of Dominance. Suppose a veil tailed male guppy is crossed with a common female guppy. All the offspring from this union will exhibit the characteristics of the common guppy. However, when two of the offspring are mated, the fry from this mating will obey the Law of Segregation. That is, twenty-five percent will have the characteristics of the common guppy, fifty percent

will be hybrid and also exhibiting the common characteristics, and twenty-five percent will show the recessive veil tailed characteristics. This is more often expressed in a form known as the punnett square.

At this point we will return to a discussion of the technique of breeding used by the local breeder mentioned previously. Since this breeder could not safely assume that his initial parents were true breeding types, he found it necessary to breed to the third generation of fry to establish and fix his strain. Continuing our discussion from the veil tailed male is simply to do what the local breeder did. By selecting the true veil tailed male and a veil tailed female from this generation and mating the two to continuous line breeding, we have insured that all offspring will be veil tailed.

However, there is one stumbling block. A veil tailed female cannot be discerned from other females. Hence, it is necessary to isolate each female from this spawning and have the veil tailed male inseminate each female. The fry from this first mating must also be isolated so that the breeder may ascertain from the fry which female was the true veil tailed. Once this is established, we have a true breeding fixed strain of veil tailed guppies. Best of luck with yours.

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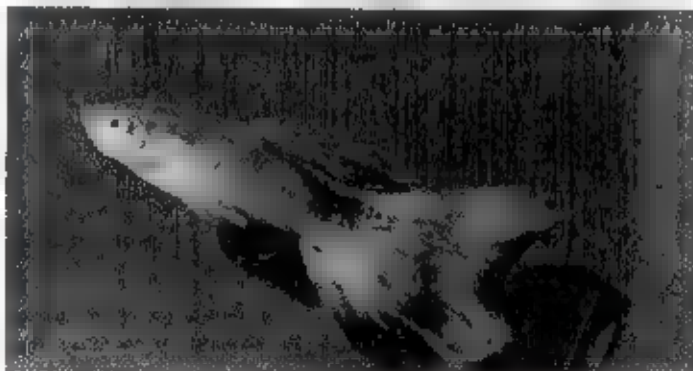
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GUPPY ROUNDTABLE

17

FRESHWATER AQUARIUM BASICS

"An aquarium is easy enough to set up and maintain, if you have enough information"

By William Yokum
Reprinted With Permission
Aquarium Fish Magazine February '90

So you have finally decided, after a number of wishful visits to your local tropical fish store, that you would like to become an aquarist.

Congratulations! You are about to join millions of other hobbyists who find keeping and rearing beautiful tropical fish rewarding and relaxing.

It certainly looks simple enough. All that is necessary to get started is to fill a tank with water, add a few rocks and plants, turn on the tank lights and introduce the fish to their new home. Right? Wrong!

Although on the surface the set-up and maintenance of a simple freshwater tank might seem an easy task, the truth of the matter is that the hobby demands a minimum amount of basic knowledge before you can expect your new pets to thrive. A few of the hardest specimens may do okay without any particular effort on your part, but if you want to raise anything more exotic you might be in for a big disappointment.

More than a few hobbyists who failed to do their homework or ask the right questions at the outset have found this out the hard way - after the first tankful of fish died. Take a few minutes to read this article and you will be spared this experience.

To begin with, the quality of the water your fish live in must fall between certain limits with regard to temperature, pH, nitrite concentrations and other factors. Do not be embarrassed if some of these terms seem foreign to you - they were new to all hobbyists at one time or another.

The water you place in your tank is often heavily chlorinated because your local water company is dedicated to preventing the growth of bacteria in underground pipes. While this is a necessary evil to prevent humans from coming down with all sorts of diseases, the chemicals used for this purpose, chlorine or chloramine, spell doom to fish.

Fortunately, there are a variety of products on the market that can be added to the water that bond chlorine or chloramine into harmless compounds. Dechlorinators will handle chlorine, but because chloramine is a combination of chlorine and ammonia, a more complex chemical neutralizer is required. There are several products on the market, often referred to as one-step water conditioners, that not only neutralize chlorine but also eliminate ammonia, which is very toxic to fish. Some of these products also contain special compounds to preserve the fish's vital skin slime coating. If this slime layer is damaged during transport or handling, bacterial and fungal infections can easily take hold, weakening or even killing your fish.

After dealing with chlorine or chloramine, the pH of the water must be taken into account. The term pH does not stand for "percentage of hydrogen" as some people believe. Rather, it signifies the logarithmic values of the concentration of hydrogen ions present in a liter of water. In everyday terms, it is used to define the acidity or alkalinity of the water.

A scale of 0 to 14 is used to measure pH. Readings of 0 to 6.9 indicate acidity, 7.1 to 14 indicate alkalinity and 7 is neutral. Most fish can live within the 6.5 to 8.2 range

without visible stress. Most public water supplies fall within this safe range, but if you use well water or live in an area where water comes into contact with limestone bedrock, your readings may be outside the safe range.

Looking at the water tells you nothing about the pH. Therefore, it is wise to invest in a simple pH test kit so you can measure the water yourself. These kits are very inexpensive.

As a rule, unless there is a significant reason to change the pH, it is always better to leave it alone. A stable pH value is always preferable to one that fluctuates over a range of values. If you discover that a change needs to be made, there are products that can alter the pH of the water. You can also use ordinary distilled water or sodium biphosphate to reduce very alkaline water to normal levels. Sodium bicarbonate is an efficient compound to raise acidic water to acceptable levels. If your water requires drastic changes, make them before you add fish to your aquarium. Rapid changes in water chemistry will probably kill anything you have in the tank at the time.

While the pH is occasionally of some concern, the temperature of the water frequently has a more pronounced and potentially harmful effect on tropical fish. Most species require a temperature between seventy and eighty degrees Fahrenheit (21 to 27 degrees Celsius). The typical temperature of most community tanks is near the middle - around seventy-six degrees Fahrenheit (24 degrees Celsius). Modern aquarium heaters make the job of maintaining the water at a constant temperature an easy one. Just set the thermostat and check the temperature periodically with an aquarium thermometer. Make sure that the heater is working properly.

Rapid changes in water temperature should be avoided. Tropical fish

(continued on page eighteen)

are accustomed to fairly steady temperatures in the wild. Although it is true that some species move naturally from sunny, warm pockets of water to shady, cool ones and back again, in general, however, fish do not tolerate sudden and pronounced drops in temperature which may occur if your heater fails during the winter months or here is an extended power failure.

The physical stress on the fish of frequent ex-draught chilling can result in a parasitic infection known as ich, which is characterized by very small white spots on the body and fins of infected fish. The infection is highly contagious to other inhabitants of the tank and is fatal, unless treated with the appropriate medication. Malachite green, particularly when combined with formalin, is very effective for treating ich. However, it is always better to avoid disease problems rather than trying to cure them.

Above-normal water temperatures do not usually contribute to infectious diseases in tropical fish,

but the effects can be subtly damaging nonetheless. Prolonged exposure to excessively high water temperatures will gradually weaken the fish, leaving them susceptible to disease. The warmer water also holds less oxygen and causes most fish to lose their appetites and become lethargic.

In the worst case scenario, a defective heater may stick in the "on" position and cook your fish in a very short time. It is always wise to purchase a high-quality heater which will prove more reliable and trouble-free than an inexpensive one. Also, it is better to purchase a new heater rather than trusting a used, mineral-encrusted heater inherited from another hobbyist.

Although many heaters are designed to be fully submersible, they are not - make sure you read the manufacturer's instructions. If the heater is not meant to be fully submerged, never immerse it further than the water line marked on the housing, and never remove a heater from the tank while it is still on. When installing the heater

do not turn it on until there is sufficient water in the aquarium to cover the tube up to the waterline mark. By following this advice you avoid problems such as overheating, heater failure, a burst heater or even electrocution of fish and fishkeeper.

Some of the problems faced by novice aquarists are actually caused by the fish themselves. As with all organisms, fish consume food and excrete waste in the form of urine and feces. In a fish's natural habitat, this waste is carried away or diluted to insignificant levels by a constant supply of fresh water. In the closed system of an aquarium, however, the waste levels can build up in a surprisingly brief period of time.

The amount of waste becomes apparent as increased levels of ammonia and nitrite, which kill more fish every year than anyone might initially imagine. Ammonia is quite toxic to fish even in very small quantities, as is nitrite. There are a number of commercial preparations

(continued on page 19)

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available that are designed to temporarily neutralize excess ammonia. These products, however, only represent a stop-gap measure. Chronic exposure of the fish to excess levels of nitrite, which is created when bacteria in the tank consume ammonia, will inevitably lead to disease and death. The use of a small amount of salt in the tank water can relieve the worst effects of nitrite but is not a long-term solution. The best way to keep these dissolved toxins within safe levels is to utilize effective filtration and perform weekly water changes. Siphon off from ten to thirty percent of the water (along with detritus from the tank bottom) each week and replace it with water treated for chlorine or chloramine. This procedure will dilute the ammonia and nitrite in the tank water but cannot effectively reduce them to safe levels. Water changes also reduce other dissolved, less harmful organics in the water, some of which cannot be removed by filtration.

The levels of ammonia and nitrite considered to be safe are so low that test kits designed to detect these compounds will be unable to do so. Like the pH test kits mentioned earlier, ammonia and nitrite test kits can be purchased for a few dollars at any well-stocked pet store and are well worth the investment.

Despite the value of weekly water changes, it is the filtration system that will most effectively control ammonia and nitrite, provided you know what type to use and how often to change its media. The inside corner box filter commonly seen bubbling away in small aquariums is seldom adequate for use in tanks containing more than ten gallons. A much better choice would be an undergravel filter, preferably used in conjunction with an outside power filter. The undergravel filter provides biological filtration, while the outside power filter removes solid matter floating in the water and uses chemical filtration media, such as granular

activated carbon, to remove many types of dissolved organic compounds.

The undergravel filter relies on colonies of ammonia and nitrite consuming bacteria in the gravel bed to biologically control these toxins. In tanks with smaller volumes, the undergravel filter can be powered by a small air pump and airstones. In tanks above twenty gallons, either a much larger air pump must be used or one or two powerheads should be fitted to the top of the lift tubes. There must be sufficient water flow through the filter bed in order for the bacterial colonies to do their job efficiently.

The power filter removes suspended particles of food and fish wastes from the water and also provides the chemical filtration referred to above. The mechanical and chemical filter media must be replaced periodically. In general, it is easier to maintain an outside power filter that hangs on the back of the aquarium than a canister filter, which must be disconnected and taken apart to replace the media. Canister filters, on the other hand, generally provide higher flow rates.

While seldom a cause for major concern, tank lighting also has potential for abuse. Some aquarists, apparently thrilled with the appearance of their new tanks, will leave the lights on for longer than they should. Some even go to the extent of leaving them on all the time. Aside from the cost of electricity for this continuous light, the fish suffer from what amounts to permanent daytime and cannot get the rest they require. The sun is not up all day in the natural world and fish are unprepared for a day that never ends.

Excess light also encourages algae growth, which will quickly cover the glass, plants and rockwork in your aquarium. In addition, the heat from the lights

(continued on page twenty)

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particularly incandescent bulbs raises the temperature of the water. This may not be a problem in the winter, but many tanks suffer from higher water temperatures during the summer months.

If the tank contains live plants, the intensity of light is as important as the duration it is on. Ten hours per day is a good starting point. Never place an aquarium in a location where it will receive direct sunlight. The likelihood of excessive algae and overheating is much higher with sunlight.

There are a few other tips that bear mentioning. Never place an aquarium where it will be exposed to drafts, such as near an outside door or air conditioner vent. The constant change in air temperature will make the heater work that much harder and the temperature fluctuations in the tank will only stress the fish.

Avoid the temptation to overfeed. Limit your feedings to no more than six to eight small feedings per day and only feed what the fish consume within five minutes.

Excess food will decay, thereby generating additional ammonia while encouraging bacterial blooms that cloud the water and compete with the fish for oxygen. Also use a variety of good-quality prepared foods and offer your fish frozen or live foods for additional nutrition.

As for the fish themselves, always be alert for symptoms of disease. Watch for listlessness, loss of appetite, difficulty swimming or maintaining balance, fuzzy patches on the skin or fins or repeated scratching against objects in the tank. If you observe these or other odd symptoms, consult a good text on fish diseases or ask your dealer for help with the problem. Chances are, the problem can be cured with the appropriate medication or more often a change in the fish's environment, particularly improved water quality. Don't play guessing games and repeatedly treat the entire tank with chemicals or antibiotics. This may or may not cure the sick fish and other healthy fish may be adversely affected. If the niftying bacteria in the undergravel filter perish as a result of ill-conceived

treatment, all of the fish will suffer. Finally, take the time to research each fish before you buy it to make sure it can live under the conditions you are providing. And make certain your fish are compatible; do not mix aggressive fish with peaceful ones. This will result in the death or constant harassment of the more timid species and will cause you hours of unnecessary guilt and worry. Many fish are lost each year due to aggression from their tankmates.

The basic information provided here will help make your aquarium a healthy home for the tropical fish you choose to keep. With reasonable caution and a little common sense, your fish should live and thrive for many years and provide you with countless hours of enjoyment.

When someone asks you how you keep your tank so nice, pass on some of the tips you have learned here. Your tank will set a good example for others who may wish to take up the hobby.

Peat Plates: Pros and Cons

By Joanne Harrison
Suburban Aquarist Society

We read in Baensch's Atlas that peat can lower pH naturally and safely. It is also necessary for spawning certain fishes such as Neon Tetras. Tetra makes a peat extract and several other companies make various other peat products such as bags, filter media and plates.

We decided to try peat plates when we could find them, for use in our guppy tanks. Several problems arose, the first being that peat floats. We had several inches of gravel on top of the plates, but they still rose to the surface. Now, the second problem: the plates break

apart easily. What a mess!

We finally got the big pieces buried under some rocks until they were thoroughly soaked and no longer floated. The next couple of tanks were a bit easier because we used large rocks right from the start. Once in the tank, the problem of breaking up reoccurred when we tried to gently clean the tank (our normal weekly water changes). It is not too bad but it still occasionally happens.

An extremely important word of caution: Do not use peat plates if you plan on having fish that dig in the tank (catfish). They will dig it up and it will break apart and mess up your tank royally.

Once the problems of floating and breaking up were more or less overcome, the benefits of peat

plates finally became apparent. The pH went down from 7.8 to 8.0. Also, my plants took root in the plates and grew like wild fire. The nutrients in the peat are very beneficial.

Some of the best growing plants for tanks containing peat are Dwarf Hygrophilla, Indian Fern, Java Moss, Lilies, Orchid Lily and Water Sprite. I also have a few other odds and ends in some of my tanks. Have to thin out some plants every two to three weeks or else they will overrun the tank. That makes it very hard to find the fish!

If you want to keep live plants in your tanks and the fish you plan on keeping like a lower pH, then try peat. It will benefit both the fish and plants and that will make for a happy, healthy aquarium. It also makes for a happy hobbyist.

WHAT YOU SHOULD KNOW ABOUT GUPPIES

By Warren Burke
Nassau County Aquarium Society
Reprinted with permission: Pages Press

They are primarily interested in fancy guppies, and as much as we have to analyze and the techniques and the conditions under which the very best may be brought out in each individual fish, that is another story.

First let's take a look at the essential environment for breeding and rearing fancy guppies. The water in which the fish are to be maintained. There are three important properties of water which are of interest to the guppy breeder and they are clarity, cleanliness, acidity and the hardness of water. Now if guppies are to be kept in a small aquarium, their own feces and urine alone would soon contaminate the water and stunt or cause the death of the guppies directly or so weaken them that a serious parasite would finish them off. You should try and arrange to change thirty percent of the water bi-weekly. Ten percent nightly would be even better.

Acidity of the water. All water has a measurable amount of acidity or alkalinity. If the water has a property of being one hundred percent acid it has a pH of 0. If it is one hundred percent alkaline it has a pH of 14. Thus the scale of acidity and alkalinity runs from 0 to 14 with the usual units as units. The center of the scale 7.0 is water that is neither acid nor alkaline. It is the most desirable pH for most aquarium fish.

Now we take the hardness of water. The hardness of aquarium water is the measure of the dissolved salts contained therein. Too few dissolved salts such as in rain water or distilled water is as

dangerous to fish as very hard water and it is impossible to grow fancy guppies in either. Many aquarists do not bother to check their pH. The pH should be between 6 and 8. That is the best for guppies.

The proper temperature is an important factor also. You should try to keep the water temperature between seventy-four degrees Fahrenheit and seventy-six degrees Fahrenheit. Thus it would be best for the beginning aquarist to try to come as close as possible to these optimum averages.

Lighting is an important factor also. Young guppies as fry should have a small light on twenty-four hours a day until they are one month of age. Thereafter twelve hours of light is sufficient.

Feeding your guppies is vitally

important in the first two or three weeks of the guppy's life to ensure they achieve their optimal growth potential (can not stress this strongly enough). There are six most important foods for your guppies: Baby brine shrimp, microworms, beef liver, beef hearts, TetraMin and crushed garden worms. They should be fed eight to ten times daily sparingly and only what they can consume in fifteen minutes. Ten according to their age up to five months of age five to eight times daily thereafter five times daily.

Filtration is another important part in raising fancy guppies. Many different types of filters and pumps are on the market today. If you have only one or two tanks you will only need a vibrato for your tank. If you have more you will need a larger unit. Also along with the filter you need some amount of Dacron wool or fiber. The essential thing is that it should be adequate to maintain sparkling clean water and if this necessitates frequent changing of the filter materials, then that should be done.



Submitted by "The Mystery Cartoonist"

QUARANTINE

By Bryan Burgstall
American Catfish and Loach Association

Most hobbyists have had the dubious honor of a disease infecting the prized and sometimes expensive specimens of their collection. After diagnosis and treatment of the particular ailment, the big question arises: "What caused it?"

In the majority of incidents, a new resident, thought to be disease-free, was introduced shortly before the outbreak occurred. How can this problem be averted? By a quarantine process of ALC new acquisitions before introduction into an already established and balanced aquarium. I will give you my particular program that has been very successful with a few exceptions.

I always have a few spare five or ten gallon tanks available for quarantine or other emergency purposes in my set-up. They are equipped with either an inside corner filter or air stone, aged water with a neutral pH and a heater. Decorations are kept to a minimum with the exception of one inch of gravel, floating plants and one or two flower pots for hiding places. The back and sides are painted black and the tank is covered with tin foil. This offers the fish maximum security and temperature control.

Stress and shock are the two largest contributors to disease. The majority of them cannot become established unless the fish's natural defenses are impaired. Sudden, drastic changes in pH or temperature, poor nutrition, untreated wounds and sudden bright lighting all create undue stress and shocks which in turn cause an imbalance in body metabolism. An open invitation for disease organisms. Even an

infected fish can control these organisms if its resistance is at full strength. This is why all my quarantine tanks are kept dark and well-aerated at all times. No medication can take the place of a fish's natural defense mechanisms.

The quarantine aquarium must be kept clean at all times. Food should be given in small amounts and any uneaten food removed immediately. Siphon approximately one gallon of water every other day and replace with aged water. Temperature should be maintained at a constant eighty-two to eighty-four degrees Fahrenheit. Keep the fish under these conditions for at least three weeks. At any sign of distress or disease, treat accordingly. (Remember that certain species of fish, especially catfish and loaches, have a low tolerance to salt and medications. Keep this in mind when treating them.)

The fish should be introduced into the quarantine aquarium with an emphasis on lessening the stress.

due to acclimation. Float the bag containing them for at least a half hour and place an air stone in the bag to reduce a buildup of carbon dioxide. Check the pH of the tank with the water in the bag and adjust as needed. Tip the contents of the bag gently and allow the fish to swim out into the aquarium. Never, never, never dump the bag into the aquarium. This causes unnecessary stress. Allow a minimum of a twenty-four hour period for the fish to adjust themselves to their surroundings. Add non-iodized or kosher salt in proportions according to species. Do not feed until the twenty-four hour adjustment period has passed, and then feed small amounts. Keep the aquarium dark and well covered.

When transferring to other quarters, be careful that water temperature and pH are approximately the same. Gradually adjust these factors in the quarantine aquarium over a period of a week to ten days. Follow the procedures above for transfer.

After placing the fish in their new quarters, keep the lights turned off for at least twelve hours and feed lightly afterwards.



Submitted by Matthew Martini

"Of course, before you reach maturity, most of you will be eaten."

PRIMING AND HOLDING SHOW GUPPIES

By Richard Eisenmann

I certainly hope everyone has their guppies in tip top shape because in the next six months there are at least six shows coming up. So if you have any gups that are about four to six months old and show any promise at all, you had better buckle down and give them prime space and food if given proper care. Almost all guppies will respond with growth and color. By proper care, mean not more than six to eight good males and two females to a ten gallon tank, better yet a twenty gallon tank.

If your guppies are young and you want to speed them up, raise their tank temperature to eighty to eighty-six degrees Fahrenheit. This will speed up their metabolism and they eat more and grow faster. But do not forget when you raise the temperature there will also be more tank cleaning to do because of the amount of food that they will be eating. If you keep the tank absolutely clean this will help to cut down on diseases and split tails. So remember a clean tank is a happy tank and your rewards will be healthy and vital fish.

Give them as much live food as is available. This means live baby shrimp, daphnia, white worms and mosquito larva. Almost all of these foods are close at hand if you spend a little time to find their source. You can raise or hatch live baby shrimp and white

worm cultures are available at quite a few fish stores.

The worms can be raised in a small wooden box in the cellar where the temperature does not get too much over sixty-six degrees. The box should be about twelve to twenty inches long and about six to eight inches deep. This should have rich garden soil four inches deep with a glass under the dirt to keep the worms from wandering around the basement. Also cover the top of the box to keep the moisture in. The dirt should be moist but not damp. Add your white worm starting culture to the box and make a few small holes in the dirt. In these holes put a little old bread soaked in milk and carefully cover the holes again.

The worms will feed on the bread and multiply very well. Add more bread as the worms eat the old bread but do not feed till they eat all the first feeding because it will get moldy if left too long. So gauge your feeding to the amount of worms you have. It will take approximately three to four weeks before you have enough worms to feed your fish and do not feed white worms more than two or three times a week because they are a very rich, starchy food and if fed too often they will cause fatty degeneration of the internal glands (bloating) and usually death.

Daphnia and mosquito larva are usually found in any pond or stream that does not have too strong a

current. Ponds are best because the dead leaves and vegetation make good food for daphnia and mosquito larva. Once you have found a place to gather them, all you need is a long handled net (the longer the better) and a bucket. Take the net and give it a figure eight movement under water a few times and you will find that it is not too difficult to get enough for a few feedings.

Once you get this food home be careful because the mosquito larva will hatch into mosquitoes in a very short time. If you separate the mosquito larva from the daphnia and put them in the refrigerator you can slow down the hatching and hold them a lot longer for feeding. When you feed them, be sure to only feed as much as your fish will eat because the mosquito will hatch very quickly in a heated tank. With the use of these live foods and high temperatures your fish should do very well. So let's get out and see what we can find.

If your fish are show size now and you think they will be too old by show time, then you should do the reverse of the foregoing suggestions. The way to make fish last longer is to gradually lower the temperature to about seventy-two and do not feed too heavy. I think one feeding a day with dry food and low temperature will make these show fish stay in prime shape for about twice the time that they would at temperatures of seventy-four to eighty degrees Fahrenheit. Keep their tank absolutely clean and you will surprise yourself how long they will live. I hope this advice will help you in the future shows.

See you at the Show

HELPFUL HINT

Pesky case of the dreaded "Clamping Disease" running rampant through your fish room? Try using four capsules of Spectrogram (150 mg water soluble Kanamycin Sulfate and Nitrofurazone Activity), six drops of Formaldehyde, and one tablespoon of rock salt per ten gallons of water. This nuclear dosage of medications has cured the "pesky problem" in my guppy tanks in twenty-four to thirty-six hours.

Davidene Tall

MESSAGE FROM THE PRESIDENT

By Jim Alders, D.V.M., President
International Fancy Guppy Association
Pan Pacific Guppy Association

Dear Members,

The winter has passed and the show season is just around the corner. The one thing that makes the shows most interesting are an abundance of entries. Everyone should support the hobby and participate, participate, participate. Having show fish at the right time of year takes timing, work and luck. For several years I had my best fish in January. Now when people come to my fishroom in the winter they think all guppies only live until three months of age because that is all that is in the room.

The meeting show is coming up in St. Louis. All the delegates should come organized. If you have ideas or suggestions, write them down so they may be presented in a timely fashion. Review the minutes from the annual please. This will help when it comes to old business. One area we should consider is making the IFGA more economically viable if anyone has fund raising ideas, bring them to the meeting or drop me a note. An organized program at the shows on Sunday morning

would be very helpful and interesting to newer members.

After years of biochemistry and pharmacology all this print on drugs and medication is reminding me of school. The most frequently used chemical in my fishroom is Chlorox. Treating guppies frequently induces a cancer state and allows the disease to persist in your tanks.

Nematode infestation is about the only disease you can eliminate with medication. I have autopsied fish from many breeders that complain of wasting disease and found worms in all (100%) of them. I use one capsule of discomed in two or three ounces of beef heart. Treatment should be continued twice weekly for four weeks to ensure you eliminate the larval stages of the nematodes. You will probably have to stop feeding the fish baby brine for a couple days to get them hungry enough to eat the beef heart.

I hope everyone is looking forward to the new show season.

See you at the shows!

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INTERNATIONAL FANCY GUPPY ASSOCIATION
MEETING AGENDA - MAY 21, 1994
GATEWAY GUPPY ASSOCIATES SHOW

Roll Call.....	JAMEY MAGNIFICO
Treasurer's Report.....	ROBERT STRATTON
Judging Board Report.....	PAUL GORSKI
Membership Report.....	MARLYN JOHNSON
Publicity Report.....	DAVID POLUNAS
Publication Report.....	DAVIDENE TAIT
Clearing House.....	STEPHEN KWARTLER
Show Rotation.....	MARLYN JOHNSON
Awards Report.....	RUDY MARSHBURN

FIFTEEN MINUTE BREAK

Old Business.....	
New Business.....	Nominations For Officers

MESSAGE FROM THE EDITOR

The Guppy Roundtable is intended to be the official mechanism for publishing show results from recent International Fancy Guppy Association sanctioned shows, the accumulation of show points, show information, minutes, messages and announcements concerning the organization. In order to make this possible, the respective Committee Chairpersons, Show Chairpersons and Officers must forward accumulative point totals, show information, show results, minutes, messages and announcements to the Editor in a timely manner.

The publication deadline for receipt of information by the Editor, to insure insertion in the next regularly scheduled issue of the Guppy Roundtable, is the **FIRST DAY OF THE MONTH** (not the fifth, not the tenth, nor the fifteenth, and certainly not the twentieth day of the month as occurred this month). Beginning with the May 1994 issue of the Guppy Roundtable, information received by the Editor after the publication deadline will be published in the following month's issue. **NO EXCEPTIONS.**

Compliance with the publication deadline is of paramount importance if the Publication Staff is to distribute the Guppy Roundtable to its readership on time. Everyone's cooperation will be greatly appreciated.

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February 1, 1994

HEARTLAND GUPPY CLUB
SHOW DATES
April 30 - May 1, 1994
RULES DUE DATE
February 1, 1994

COLUMBUS OHIO GUPPY SPECIALISTS
SHOW DATES
May 21 - 22, 1994
RULES DUE DATE
March 1, 1994

FIRST HALF
1994 - 1995 SHOW SEASON

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July 16 - 17, 1994
RULES DUE DATE
May 1, 1994

PAN PACIFIC GUPPY ASSOCIATION
SHOW DATES
August 6 - 7, 1994
RULES DUE DATE
June 1, 1994

NEW ENGLAND FANCY GUPPY ASSOCIATION
SHOW DATES
August 27 - 28, 1994
RULES DUE DATE
June 1, 1994

GUPPY ASSOCIATES INTERNATIONAL OF CHICAGO
SHOW DATES
September 17 - 18, 1994
RULES DUE DATE
July 1, 1994

GUPPY ASSOCIATES OF MILWAUKEE
SHOW DATES
November 4 - 5, 1994
RULES DUE DATE
August 1, 1994

THE SEARCH INTENSIFIES

By: Davidsa Telt
Pan Pacific Guppy Association

The Pan Pacific Guppy Association is an aggressive pursuit of new members as intensifying with the recent appointment of Elaine Poy as Publicity Director for our organization. In behalf of the constituency of the Pan Pacific Guppy Association a special note of appreciation is extended to Elaine Poy who magnanimously accepted her nomination of Publicity Director for the Pan Pacific Guppy Association. With her enthusiastic support, our goals of aggressively promoting our association and newsletter in various magazines, newspapers, and tropical fish stores will be better served.

Our goal is to significantly increase membership in our association is motivated by our commitment to furthering the advancement, enjoyment, knowledge and pleasure of breeding fancy guppies. The PPGA currently boasts almost seventy members

residing throughout the Southern California area. To afford us the opportunity to aggressively promote our club, we would appreciate ideas from club members that should be utilized to accomplish our lofty goals. Coupled with your suggestions, please volunteer your desperately needed time and energy to further our objectives. This is YOUR club and its continued growth and success hinges on your support.

Although the *Guppy Roundtable* has been designated as the official monthly publication of the International Fancy Guppy Association, the PPGA has retained publication credit. Now more than ever, articles penned by members of our club are sorely needed. Your experiences (humorous and serious) will enable the *Guppy Roundtable* to continue as the definitive source of information for breeders of fancy guppies. You do not need to be a perfect writer; that is why there are editors. I will gladly make any necessary modifications. Make an Editor happy and write an article for publication in the *Guppy Roundtable*!

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PAN PACIFIC GUPPY ASSOCIATION MONTHLY BOWL SHOW

Members of the Pan Pacific Guppy Association are readily encouraged to bring their fancy guppies to our monthly meetings and bowl shows to afford themselves the opportunity to have their "little creations" critiqued by the country's preeminent breeder of fancy guppies, Jim Alderson. What better way to learn if you are on the right track to win a color class at International Fancy Guppy Association sanctioned bowl show competitions than to have your guppies judged on a monthly basis.

Discouraged by what you see swimming around in your fishroom? Afraid your guppies will not "cut the mustard" at IFGA bowl shows? Bring several of your lovely little specimens to our monthly bowl show to receive some pointers on why your guppy is in the "also ran" category and not Best of Show caliber.

GUPPIES FROM THE PAST

By: Jim Alderson, D.V.M., President
International Fancy Guppy Association
Pan Pacific Guppy Association

When working with guppies I frequently encounter the genetic phenomenon of gene segregation. This is the property of similar genes being inherited together. The more a line is inbred and the line is "fixed" the more likely the genes are to segregate. Perhaps an example would clarify this interesting genetic property.

My Half-Black AOCs originated as a cross between Half-Black Fasties and variegated snakeskins many generations ago. For many generations they produced only Half-Black AOCs. After five years, snakeskins began to show up in many of the offspring. At first they were solid caudal snakes, but now they are variegated snakes resembling the ones I used to make the original cross.

The original snakeskins were variegated snakes from Rich Bader's line. The snakeskins out of the Half-Blacks are a little smaller, but they have a better dorsal than the original line. They also carry vertical bars in the body which is undesirable in the past when I have inbred snakes with vertical bars for two or three generations I will begin to get 25-50% of the offspring with a nice lace or chainlink pattern in the body. This is another example of segregation. From this one line of fish I can eventually end up with genetic material from the guppies that were used to make the line.

By selective breeding the Bader snakeskins can be recreated. These were large fish with yellow and black markings. Many would have very long, albeit somewhat thin dorsal fins. The larger fish carried the vertical bars and a coarse dot pattern in the caudal

and dorsal fin. They would produce a percentage of the finer patterned fish with a lace pattern covering the entire body, caudal and dorsal. These fish were smaller, grew more slowly and took much longer to grow an adequate caudal. Superior specimens of this lace variety are big point getters on the show bench due to the match of the body color, dorsal color and caudal color.

When raising these lines would always cross the lace patterned males with the females from the coarse patterned line. The females from the coarse line carried black dots in the caudal while those from the lace line had clear fins. The females from the lace line were small, weak, and never produced many young. When the lace males were crossed with the coarse females I would get about 50% young with the lace pattern. They would be harder and larger than the pure lace bred fish.

The snakeskin females are great for crossing into other lines if you are trying to produce a fish with a pattern in the caudal. The males can also be used, but remember that the snakeskin gene is a sex-linked dominant gene so all the males sired by a snakeskin will be snakeskins. If you cross a variegated snake male with a blue female for example, you will get males with a snakeskin pattern on the body (no bars) and 50-90% of the caudal will be blue. A snakeskin male crossed into a red female produces a snakeskin pattern in the body (with bars) and a streaky red and yellow pattern in the mostly red caudal. A yellow snakeskin male crossed into a green female produces a snakeskin body pattern (no bars) and a green caudal with 10 to 40% variegation.

Snakeskin females can be used to make AOC bicolors, red bicolors, Half-Black AOCs, multis and blue-green bicolors. They say in golf you never stand too close to the ball. Well in guppies, you can never have too many snakeskin females.

PAN PACIFIC GUPPY ASSOCIATION MEETING SCHEDULE

APRIL 10, 1994 - 2:00PM

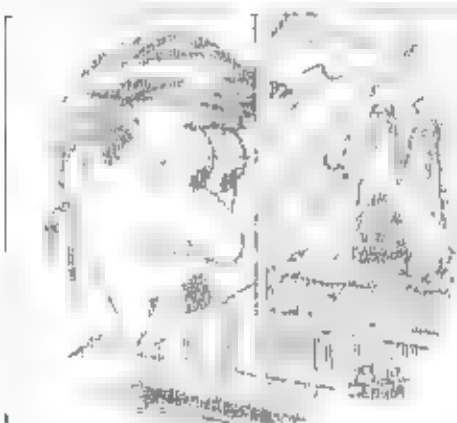
JIM ALDERSON'S HOME
20835 East Garfield Drive
Wenatchee, California 98808
509-594-4233

DIRECTIONS: Santa Monica Freeway East (10) to Pomona Freeway (60) to Grand Avenue exit. Turn left off freeway off ramp onto Grand Avenue. Grand Avenue to La Puente Road and turn left. La Puente Road to Garfield Drive and turn right. His home is located atop a steep, private, gated driveway. For any lost souls who require further directions or guidance, please contact Jim Alderson for assistance.

MAY 15, 1994 - 2:00PM

MIKE KHALID'S HOME
16651 Parthenia Street
Beverly Hills, California 91343
818-892-2456

DIRECTIONS: San Diego Freeway North (405) to Roscoe Boulevard. Turn left off freeway off ramp onto Roscoe Boulevard. Roscoe Boulevard to Havenhurst Avenue and turn right. Havenhurst Avenue to Parthenia Street and turn left. His home is located on right-hand side of street. For any lost souls who require further directions or guidance, please contact Mike Khalid for assistance.



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GUPPY ROUNDTABLE

THE OFFICIAL MONTHLY PUBLICATION OF THE
INTERNATIONAL FANCY GUPPY ASSOCIATION

VOLUME 1 ISSUE 1X

PUBLISHED BY THE PAN PACIFIC GUPPY ASSOCIATION

MAY 1994

GUPPY BREEDING AND PRENATAL CARE

By John Calamia
Pan Pacific Guppy Association
Corresponding Member

How do food conditions during the months prior to birth affect the number of fry in a litter, the size of the offspring, and the time interval between broods? David Raznick and Anthony Yang varied the availability of food to mother guppies during the months prior to the birth of a litter to understand when these reproductive variables are influenced. Here is a summary of the experiment that was reported in the *Ecology Journal* in 1993.

THE EXPERIMENT

Forty female guppies, second and third generation removed from wild Trinidad stock, were maintained with adequate food and mated freely with mature males in community tanks. When they were large enough to have produced a few fry, each female was isolated in a separate eight liter (two U.S. gallon) aquarium. After each delivered a brood of offspring, they were randomly assigned to either a high food or low food group. The high food group was given amounts that were just below ad libitum volumes, while the low food group was fed amounts of food calculated to be just above minimal maintenance, approximately one-fifth as much food as the high food group. They were fed different amounts of identical menus of liver paste and freshly hatched

high food condition. Thus there were four groups of ten females: one that received high food during both intervals, one that received low food during both intervals, and two groups that had high food during one interval and low food during the other interval. The first interval, the period between the first and second broods, might normally be considered the pre-fertilization, or egg development period for the third brood. The period between the second and third brood is the period of embryonic development for the third brood.

(continued on page three)

THE IMPORTANCE OF SELECTING GOOD BREEDERS

By Richard W. Fleming
Pan Pacific Guppy Association
Corresponding Member

Choosing the best guppies for breeding has always been problematic for most hobbyists, whether advanced or novice. When most people are preparing to choose their breeders, they mistakenly tend to look at the males and more or less forget about the females. Many people who cannot choose proper females, even though they have the proper males, will eventually lose the desirable characteristics in most strains of guppies.

When you come right down to it, the females are more important in the breeding process than the males. In some strains the female guppy may have as much as fifty percent

of the characteristics which the offspring will inherit, and the male is more forty percent. Therefore it is a real guppy breeder who can choose the females. The males are simple to breed and choose by comparison.

Since it is almost impossible to get all of the desired characteristics in one fish, you must break it down. Most breeders use different lines of fish for different characteristics. One for the tail shape, one for tail color, one for body size, one for dorsal color, etc.

After generations of selective breeding and choosing the proper females, you can combine a few of these characteristics in one strain of guppy. All of these creative hybrids are necessary to perfect just one color strain of fish.

INSIDE THIS ISSUE

- 4** **A HISTORY OF THE GUPPY**
By Albert J. Klein, Ph.D.
Everything you wanted to know about the history of guppies, and more
- 13** **PREPARATION FOR SHOWING**
By Len Wasserman
Why preparation for showing begins the day guppies are born, not two weeks prior to the show
- 15** **MY FIRST GUPPY AUCTION**
By Shephard Kwartler
Another clamping chapter in the continuing saga of "Guppy Variables"
- 18** **GUPPY GAMBITS**
By Megan HMI
Concise article on several gambits that might cause confusion in guppies
- 19** **SHOPPING FISH TO A SHOW**
By Renee McCready
Informative article geared towards the experienced guppy breeder on how to ship fish to a show
- 20** **FISH NUTRITION AND THE AQUARIUM**
By John Kuhns, Ph.D.
Fish nutrition is a complex subject. The progressive methods are as complicated as human nutrition
- 20** **THE SHOW ITSELF**
By Art Hopkins
Wouldn't it be guppies after you ship them off to a show? Find out in this article
- 22** **PRESIDENT'S MESSAGE**
By Mrs. Alderman, D.V.M.
Official message from the President of the International Fancy Guppy Association
- 23** **A BRIEF THANK YOU**
By Shephard Kwartler
Would like to offer my many thanks to all those who made the show a great success
- 24** **SOUTH JERSEY GUPPY GROUP SHOW RESULTS**
Shane Kaskas Courtesy Of David Polanco
Official show results from first show of the second half of the current show season.
- 26** **COLUMBUS OHIO GUPPY SPECIALISTS SHOW INFORMATION**
More Information Courtesy of Betty Bradley
Detailed information concerning the last show of the 1992-1994 show season.
- 28** **AFTER THE SHOW**
By Len Wasserman
Learn what to do after your guppies (finally) arrive home from the show
- 28** **MONTHLY BOWL SHOW RESULTS**
By Davidence Tait
Pan Pacific Guppy Association monthly bowl show results for April 1994
- 29** **WHY THE BEST GUPPIES ARE PRODUCED BY CROSSING LINES**
By Mark F. Salati
How do award winning breeders produce show guppies? chances are they crossed two lines

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The Guppy Roundtable is published monthly
except January by
Pan Pacific Guppy Association
Business offices located at:
11003 Culver Boulevard
Culver City, California 90230

Application to Mail at Second Class Postage
Rates is pending at Culver City, California

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Subscriptions are \$20.00 per year for eleven issues. Foreign subscribers must add \$4.00 per year. Please use international money orders only. Allow six to eight weeks for delivery of first issue.

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By varying food separately for these two periods, the experimenters were able to isolate how poor food availability during the egg development phase affected the size and number of offspring separately from the near-term effects of the embryonic development phase.

After the third litter, the females and their newborn offspring were analyzed, including being dried and weighed and having fat content analyzed through chemical treatment.

RESULTS

Reproductive Allotment: The weight of the offspring as a percentage of the weight of the mother just before the birth was termed 'reproductive allotment'. This is a measure of the amount of resources the mother guppy deployed towards reproduction. High food during the egg development phase (first interval) was strongly associated with a larger reproductive allotment. High food during the embryonic development phase (second interval) had a smaller but not statistically significant effect. This emphasizes the importance of good conditions for females in the month or so prior to breeding to maximize the size of the next reproductive package.

Number of offspring: The largest litter sizes were obtained when food was highly available during both intervals, averaging about fourteen fry (remember these are wild guppies!). Litter sizes when food was scarce during both periods averaged about

six. The groups that received high food during one interval and low food in the other had litters averaging about ten fry. When the size of the females was discounted, the first interval had a greater influence on the number of fry in the third litter.

Note that high food availability during the second interval increased the number of offspring but did not affect the size of the reproductive allotment. This implies that low food availability during the first period is associated with fewer but larger offspring. Indeed, the females that received high food during the first period had smaller offspring.

The association of less food during the first interval with larger offspring may seem counter-intuitive, but perhaps it is nature's way of giving the fry an improved chance of survival in a low-food environment. Most of the difference in the size of fry was identified as fat content. In essence, females with less access to food have fewer offspring but appear to devote more resources to each individual.

Interval between broods: The shortest interval between broods were obtained when food availability was high during both intervals. The longest interval between broods occurred when food was scarce during both intervals. The groups that had high food during one interval and low food in another had brood intervals in the middle, with no significant difference between these two

groups. The size and fat content of the females were also associated with better food in either interval, with the second interval having a larger impact on the total weight and fat content of the mother. The results confirm that good conditions promote more rapid succession of broods.

Female guppies usually have a pool of yolkling ova of various stages of development. The results of this experiment suggest that the amount of reproductive investment is largely determined by the first interval, normally prior to fertilization. Food availability during the second period appears to influence how many and how quickly ova are developed, and how many ova are recruited from the pool for the next litter. The results also indicate that females increase the amount of resources devoted to reproduction in response to favorable conditions. This may be an insight into the obvious, but it confirms that we see in our tanks.

Guppies are viviparous livebearers, meaning the mothers are believed to provide nourishment to the developing young after fertilization. However, this experiment indicates that the period during the month prior to fertilization is a major influence on the number and condition of the fry.

REFERENCE

Reznick, David and Yang, Anthony P. 1993. The influence of fluctuating resources on life history patterns of Allocation and Plasticity in Female Guppies. Ecology, 74, 2011-2019.

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A HISTORY OF THE GUPPY

By Albert J. Lee PhD
Subscriber by in Brady
American Watercolor Association

In the monthly reports of the Royal Prussian Academy of Science for 1859 there appeared an article entitled "Concerning a New Genus of *Lepidoccephalus* and Several Other New Fishes of the Zoological Museum". At first glance this event would not seem to hold much significance for today's aquarium hobby but we are examining the days far past. Indeed, to understand just how long ago it was, not just in the years but in the development of ichthyology itself, the *Lepidoccephalus* mentioned was nothing more than a larval form of the Eel.

This was a fact not recognized by science until two years later for, at that time, it was thought that *Lepidoccephalus* were a species in their own right. In 1858, the author of the account, the German vertebrate zoologist, Wilhelm C.H. Peters would doubtlessly have been greatly surprised had he known their real identity. I fancy that he would have been even more surprised to hear that one of the

then-obscure fishes he regulated to a subordinate position in his paper would ultimately prove to be one of the most popular and best known in the world.

• speak, of course, of the Guppy. The original description of the guppy was short and to the point. "Greenish-yellow with a blackish network: the tiny meshes lying parallel on the edges of the scales, silvery on the belly. The scales lie in seven longitudinal rows and twenty-eight transverse ones: although a few of these are bored through, there is no significant lateral line. Total length 39; height 9; head length 7 millimeters. Dorsal 8 anal 10. Caudal, collected by Gollner in the Guayana River."

To aquarists, the description is disappointing as there is no mention of the beauty of the living fish. Here Peters was not to blame, however, for he had only female specimens before him. Peters named the fish *Poecilia reticulata* (*reticulata* = "net-like" or "reticulated") after the markings on its scales, and because it was closely related to another fish, *Poecilia vivipara* (*Poecilia* was a word coined in 1838 by M. Bonaparte, the grand-nephew of Napoleon, it means

"little, variegated fish"). These black markings, a product of many tiny melanophores, are typical of female wild type Guppies to this day. In short then, the scientific name of the Guppy is a consequence of the female, not the male. If there is such a thing as a prairie Women's Lib, how they must be laughing over this curious fact!

A FIRST SPAWNING

It is a coincidence that in 1881 the very year that science finally recognized that *Lepidoccephalus* were nothing more than larval eels, the second event in Guppy history occurred. Again it was a paper written this time by a young Italian zoologist (not, as stated by other aquarists, a Spaniard), de Filippi, entitled, "*Lebistes*, a New Genus of Fishes of the Family of Cyprinodonts". One paragraph is of particular interest to Guppy specialists and quote it translated verbatim: "The Sacred Reverend Father Emmanegildo Amedeo di Tramezzo brought with him five from Jarahca (sic), a number of smallish fish which were obtained from the islands of Barbados. These little fish are viviparous, and are quite profligate even when kept in captivity, provided that the offspring are not born dead or do not succumb to the effects

(continued on page five)

TIRED OF BEING AN "ALSO RAN"?

Curious why your guppies are perennially judged as "also ran" at International Fancy Guppy Association sanctioned shows? Feeling overwhelmed when muddling your way through the complexities of guppy genetics?? Are you, totally bewildered over what to feed your guppies to achieve their optimal growth potential?? Submit your questions for thought provoking answers by Paul Gorski, Judging Board Chairman and Stan Snubel, Former Judging Board Chairman in the Series of This, Some of That monthly column of the Guppy Roundtable.

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(continued on page six)

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out, de Filippi pulled a piscatorial boner in his description of *Lebistes*. According to de Filippi, both sexes had a gonopodium! The British ichthyologist Albert Günther, said of de Filippi's description "If the characters assigned to his very doubtful genus are correct, it differs in a very extraordinary manner from the other fish of the family in which sexual differences are observed. From an inspection of the (de Filippi) figure, one should have considered the specimen to be a male but, Professor de Filippi says distinctly that the peculiar anal fin is found in the female as well as the males.

We leave de Filippi's account with two thoughts. First, his error in seeing was in part responsible for the fact that *Lebistes* was overlooked for many years by ichthyologists. In short, de Filippi's written account of this fish did not agree with other importations. Second, in a sense the Guppy was our first recorded aquarium livebearer for Father Amabile certainly was an aquarist, especially in the context of the 1850's and he bred his Guppies.

A ROSE IS A ROSE, IS A ROSE.

Backtracking now to the year 1859—the year of the first scientific description of the guppy Robert John Schreiner Guppy sent specimens of small fishes he found in the streams of Trinidad to the British Museum in London. Guppy was just twenty-three at the time and, by profession, a conchologist and geologist (not a "botanist" as stated by others). Dr. Robert Guppy's specimens were catalogued and described by the then Keeper (Curator) of Zoology of the British Museum, Dr. Albert C. L. Günther. In 1866, Günther in the Sixth volume of his great work "Catalog of the Fishes in the British Museum" published three descriptions which related to the guppy. One of these was that of de Filippi's fish which he listed under the name "*Lebistes poecilioides*". A misspelling of *poecilioides*. Subsequent to this date, *poecilioides* was misspelled frequently in both the scientific and popular literature). Günther also has a female fish, collected in Brazil by Clausen, which seemed to relate to Peter's *Poecilia reticulata*. Further, the British Museum presented Günther with several of the original

(continued on page seven)

CHAMPIONSHIP SHOW GUPPIES



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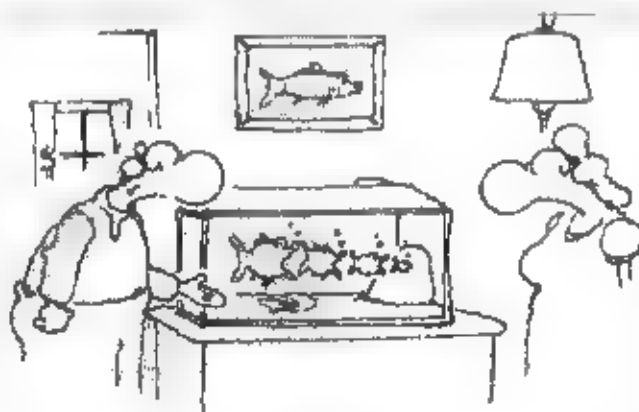
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specimens upon which Peters based his description. The counts on these specimens were rechecked and found to differ from those given by Peters, the new data being as follows: Dorsal 7, Anal 8, ventral 6, longitudinal scales 27, transverse scales 9.

Günther removed the species to the genus *Girardinus*, renaming it "*Girardinus reticulatus*". *Girardinus*, by the way, was originally a genus of Cuban fish, created in honor of Charles Girard, a famous American ichthyologist. On the other hand, Günther considered Robert Guppy's specimens to be new species and, basing his description on these fish plus a number of males and females collected by Dyson in Venezuela, described "*Girardinus guppyi*". The counts for guppy were: Dorsal 7-8, Anal 8-9, ventral 5, longitudinal scales 25-28, transverse scales 8.

Günther's description of the male is as follows: "The male is conspicuously marked: two brown streaks run along the

trunk, and are sometimes confluent into a band; one brown streak runs along the middle of the side of the tail, a round black spot behind the shoulder, another at the commencement of the caudal streak, a third at the root of the caudal. One or two of these spots may be absent. The male from Venezuela differs somewhat in coloration from those from Trinidad. The spaces between the brown streaks are occupied by very large silvery patches, and there is a large ovate spot in the middle of the side of the tail."

Günther's contributions may be summarized as follows: he described the Trinidad form of the guppy, he recognized differences in coloration between Venezuelan and Trinidad guppies, and he corrected Peters' counts for *Poecilia reticulata*. With regard to his extension of the range of the guppy to Brazil, it would appear that Günther was in error. Most likely the fish collected by Clausen in Brazil

was a female *Poecilia latipinna* or some other closely related species. As late as 1954, other fishes have been mistakenly identified by scientists as the guppy. See Fowler H.W. "Os peixes de águas doces do Brasil" Arq. de Zool. do Estado de São Paulo 954. It was too early for the guppy to have been artificially introduced into Brazil for the purpose of eradicating malaria. That was to come later.

From 1866 to 1906, things were relatively quiet with regard to the guppy and its scientific name. There were, however, a number of misunderstandings and misidentifications. In 1883, for example, Jordan and Gilbert (in their Synopses of the Fishes of North America) referenced the guppy as "*Poeciliodes reticulatus*". In 1887, in his preliminary list of the fishes of the West Indies, Jordan placed Günther's guppy in the genus *Heterandria*, falling far off the mark on that one.

(continued on page eight)

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In his great work, 'The Cyprinodonts' published in 1885 Samuel F. German recognized that Günther's '*Gambusia guppi*' was a synonym for *Poecilia reticulata*. He failed, however, to recognize that de Filippi's '*Lebistes poecilioides*' was also a synonym. Unfortunately, German included two other species in his list of synonyms for *Poecilia brachyodon* and '*Poecilia vatespoll*'. The former is a perfectly valid species and the latter is a synonym for one of the moieties, viz. *Poecilia schenopsea*.

In his description of de Filippi's fish, under the name "*Poecilia poeciloidea*" (Günther also unfortunately included a fish named by Girard in 1858 as "*Lutis poeciloidea*"). This, however, is a synonym for still another molly, *Poecilia latipinna*. It is a happy thought that the aquarium hobby was not plagued with this confusion at the time (there being no aquarium hobby at that time as we know it today); in spite of these errors, Günther did simplify the guppy nomenclature picture greatly. He reduced the list of names of two *Poecilia* *reticulata* and *Poecilia poeciloidea*.

HELPED TEDDY BUILD THE CANAL

Around the turn of the century the discovery was made that mosquitofish carry malaria. Between 1880 and 1889 the colorful and controversial Englishman, Sir Ronald Ross, investigated the issue of fish un-fighting malaria in India. After 1903 this effort was intensified. Another Englishman, C. Kendrick Gibbons, had observed that in Barbados the malaria rate was low and that the island seemed with millions of guppies (hence the origin of one of the popular names for the guppy "millions fish"). Gibbons suggested that the presence of the guppy might be the cause for this low malaria rate, and others started to use the fish in malaria eradication programs. William Crawford Gorgas, for example, used the guppy in Havana in 1902 to eradicate fever, and when the Panama Canal was being built, he set up hatcheries to breed the fish in quantity. Considerable publicity was given to all of these efforts and others began to distribute the guppy for the same purpose. Oswaldo Cruz, for example, brought them to Rio de Janeiro about 1905.

EXTENDING THE RANGE

Thus, by these man-made introductions the range of the guppy was extended considerably. As far as is known, its original range included the Netherlands Antilles and Venezuelan islands Trinidad, the Windward (Barbados) and Leeward (St. Thomas and Antigua) islands, and on the South American Continent from Yacary Province in eastern Venezuela, its coastal rivers and streams, eastward to Guyana (formerly British Guiana). It is possible that some or all of the island forms were introductions by man, but if they were, they certainly were of long-standing and had nothing to do with malaria. Distinct later man-made introductions, however, include such diverse places as Brazil, Costa Rica, India, Italy, Madagascar, Marshall Islands, Mexico and West Africa.

The year 1908 was a significant one for the guppy. Early that year C Tate Reagen published a paper entitled "On the Freshwater Fishes of the Island of Trinidad Based upon the Collection, Notes, and Sketches Made by Mr. Lechmann Guppy, Jr." The Guppy referred to here was Dr. Augustin Lechmann Guppy, one of the sons of Dr. Robert John Lechmann Guppy. In the service at the time to the government of Great Britain, The idea of collecting specimens of Trinidad fish, and making extensive field notes and sketches, was that of Edward C. Boulenger the curator of mollusks (and aquatic) at the Jordan Zo-

Under the heading of "*Glyptothorax guppyi*" (note the mispelling in spelling), Ruggan quoted the following from Leschere Guppy's interesting account: "This fish receives its name ('Belly-fish' from the fact that the females usually have the abdomen distended with young. It is very plentiful, especially in such places as the 'Dry River' at Belmont, a suburb of Port-of-Spain, where they swarm in the filthy soapy water that drains from the yards of the dwellings along the river. They save a great deal of trouble by consuming the maggot worms."

AN IMPORTATION TO ENGLAND

Years later, Lechner's Gluey found himself

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PLANE FORWARD ILLUSTRATION TO

Davidene Talt, Editor
Pan Pacific Guppy Association
3519 Mentone Avenue, Unit 8
Los Angeles, California 90034

In the animal exporting business with one of his offices in Guyana. In 1934 he was interviewed for a New York newspaper (New York Sun, August 30, 1934), and in the course of the interview made the following statement: "As a matter of fact, took a can of live guppies to a friend of mine in England in 1906 and think was the first to introduce live specimens over there." The ultimate disposition of these live specimens is not known. Perhaps

(continued on page 202)

they were given to Guppy's friend, Edward Boulenger. Whether they survived to form part of the future breeding stock of English guppies or merely died off within a short time is also not known. In any event, this importation predates by two years, what has formerly been regarded as the first date of importation (i.e. 1908: the date of a German importation). However, this was still quite a few years after Father Arnaboldi brought live guppies to Italy. In 1907 another scientific name became associated with the guppy when the great American ichthyologist, Carl H. Eigenmann, raised several older guppy names to a new genus, "Acanthophaeus." Eigenmann called Peters' fish "*Acanthophaeus ruficaudus* var. *poecilioides*," and Günther's fish "*Acanthophaeus ruficaudus* var. *guppyi*." Except for the new generic name, this was an improvement, since Eigenmann considered all three fish to belong to the same species, relegating the last two to the status of subspecies or varieties.

The following year definitely brought the guppy into recorded hobby history. In December of 1908 the German aquarist Carl Sigglekow, imported live specimens from Venezuela under the name, *Poecilia reticulata*. From then on things happened relatively quickly. In 1909, the famous aquarist, Johann Peter Arnold, of Hamburg, received live specimens from the Englishman, Captain J.A.M. Vipian, an avid Aquarist. After retirement he maintained an extensive private aquarium at his estate at Stibington Hall (he had several sturgeon over forty years old in his collection in 1925). Vipian's specimens came from Trinidad and were called "Guirahana guayanae".

STUDY NAME

In 1908 another misidentification occurred when Meek mistakenly identified specimens of the guppy taken from the island of Curacao as "*Girardinus vanderpoel*" in 1910. Another shipment reached Germany this time under the name "*Poecilia poecilioides*." Although it is not known who made this importation, we do know that the fish turned up in the hands of the famous fish breeder Paul Maier.

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of Lankwitz near Berlin), and they came from Jamaica. These guppies were, of course, introductions to that island, perhaps made in the interests of mosquito eradication. As we shall mention later, it was from this 1910 Jamaican importation that the United States received its first guppies the following year. In summary, these different importations, from different lands and under different names, understandably caused considerable confusion.

At the February 9, 1910 meeting of the Zoological Society of London, the Secretary read the following letter from Vipan who was then a fellow of the Society: "During the last eighteen months a great deal has been said regarding the absence of fever in Barbados and the cause of this immunity, which has rightly been put down to the presence in great numbers of a little fish, *Guarinius poecilioides*, locally known by the name of Milions, which feeds on water crustaceans and insects including the larvae of the mosquito, and from being in such great numbers, effectively keeps down this insect and

consequently malaria. Now the reason of this little fish being found in such vast quantities all over the island of Barbados is not difficult to state, for it happens to be the only freshwater fish on the island and consequently has no enemies. In the fish we to reduce its number. "In the island of Trinidad, where there is a certain amount of fever, there is another little fish, *Guarinius guppyi*, but in restricted numbers, as there are plenty of other and larger fishes in the fresh waters that keep it from multiplying to any great extent. "On the mainland in Venezuela where fever is still there is also a little Cyprinodont, *Poecilia reticulata* Peters but there are also great quantities of other fishes. "The three little Cyprinodonts *Guarinius*, *Poecilioides*, *Guarinius guppyi*, and *Poecilia reticulata*. I have kept for some years in an aquarium, and have found that they all interbreed freely and am quite sure they are all the same species under different names.

That being so, and the fact that in Venezuela and Trinidad, where these fishes are indigenous, there is an abundance of fever, what can be the use of expending large sums of money

in importing some of these fishes to other fever-stricken countries such as Nigeria for even supposing they survive the attacks of other fish, how could an importation of a few hundred or thousand be of any use in the great wilderness of the Niger whilst, moreover, there are a good many specimens of a genus (*Haplocheilichthys*) distributed all over the West Coast of Africa, and all of which feed freely on the larvae of the mosquito."

Vipan had an excellent point (the "Haplocheilichthys" referred to were the present-day *Aphyoseion* and *Epiplatys*). After this letter was read, the Secretary commented that although he agreed with Captain Vipan's remarks concerning guppy importations for the purpose of eradicating mosquitoes, he would favor further experimentation along those lines. The Secretary also stated that although many thousands of Barbados guppies were introduced elsewhere, no "practical" results were obtained. It would seem therefore, that the Barbados form was the one distributed all over the world during the period 1905-1910, not the Trinidad or Venezuela forms.

(Continued on page eleven)

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AN END TO NAME CHANGES

In Germany, for a variety of reasons, the name that predominated was "*Guarinius guppyi*". Although Siggekow was an influential importer, his Venezuelan specimens were drab in comparison with those from Trinidad. Arnold himself wrote "while the various colors of the spectrum are only faintly apparent in southern specimens, they appear gay and without duplications in the island dwellers." Although the Barbados form was as colorful as that from Trinidad, the latter were imported by an aquarist of great stature in the hobby (the counterpart of William T. Jones in this country). It was, therefore, the Trinidad importation that caught the fancy of the hobby in Germany. Consequently, the "guppy" name held sway and through the influence of German exporters and hobbyists, the term spread to America.

Although the name "guppy" was the most popular among aquarists (it was shortened to "guppy" for day-to-day use), confusion reigned for three additional years over its scientific name. In 1910, for example, Eigenmann had second thoughts and decided that Guenther's "*Guarinius guppyi*" was a distant species and upgraded it to full species within his new genus, i.e. "*Acanthopocetus guppyi*".

In the spring of 1911 the guppy was imported into the United States by Emil Bode, a famous German aquarist who had emigrated to the U.S. some years previously. These specimens presumably were part of the shipment of Jamaican guppies which reached Germany in 1910, although it is not known whether Bode imported these guppies directly from Germany, subsequently sending some to Germany and distributing the remainder on a very limited basis in the United States. In any event, a number of them fell into the hands of Richard Dorn, one of the pioneer aquarists in America, and the species slowly became distributed in the United States.

In the November 1911 issue of the Brooklyn Aquarium Society Bulletin, the following article appeared, written by one of the outstanding early aquarium writers in America, Christian Hecks. In effect, it

was the first article in an American aquarium magazine on the guppy.

POECILIA GUPPI

"This is another livebearing fish which, with *Guarinius reticulatus* and *Poecilioides*, belongs to the species *Acanthopocetus*. "*Poecilia guppyi*" are found in Venezuela, Trinidad, and Barbados, in the latter place they are called the "million fish" on account of their great abundance. They are also found in the Dutch colony of Surinam and in its capital Paramaribo. The fishes are raised, then liberated in ponds to catch and eat the larvae of the mosquitoes, thereby stamping out malaria. In several English colonies the local governments have distributed this species of fish amongst ponds and other still waters with the intention of extinguishing the larvae of the malarial giving mosquitoes. These fishes were first imported to Europe in 1905 and on account of their beauty have won many friends among fish fanciers. Others were imported to New York last spring, but are only held by a few collectors.

"These fishes breed every four to six weeks, bearing at first seven to fifteen young and later, as with all livebearing fishes, a greater number of young. The parent fishes are not very cannibalistic toward their young, still the aquarium must be well stocked with plants, both below and on the surface as protection for the brood. Myriophyllum and floating plants being especially adapted to this purpose. The safest way would be to remove the newly born to another aquarium, a teaspoon is a handy article for this purpose.

"The coloring of the male fish is very beautiful, red, yellow, and dark spots are found on each side of the fish, one near the gill cover and one near the tail, the latter resembling an eye somewhat similar to that seen on the peacock-eyed fish.

"The coloring varies according to the temperature and condition of the fish. Hardly two males are alike and they change their marking and coloring continuously even while watching the fish for a short

(continued on page twelve)

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time one can easily observe the rapid changes. Poeciliids are about one inch long and are one of the smallest aquarium fishes in existence. The females are plain, of a yellowish-pearly color and larger than the males.

Heide, in this article, somewhat confused the scientific names of the guppy. The fish that he referred to as "*Girardinus reticulatus*" was in effect quite a different fish. *Phallosternus caudimaculatus*. Some authors have erroneously reported the initial importation of the guppy into Germany as the year 1905 because of Koehler's misidentification of *Phallosternus caudimaculatus* as "*Poecilia reticulata*." Although *Phallosternus caudimaculatus* had been introduced to the hobby as early as 1898 (in Germany and as "*Girardinus decemmaculatus*"), it

black-spotted variety was collected in a mountain stream back of Santos, Brazil, and became known as "*reticulatus*" for the record as far as the organized guppy hobby is concerned, realistically speaking, the *Phallosternus caudimaculatus*, *Gambusia affinis holbrooki*, and *Crossostomus decemmaculatus* were our earliest aquarium livebearers.

In 1912 Edward G. Boulenger transferred de Filippi's fish to *Girardinus*, i.e. "*Girardinus poecilioides*." The following year W.F. Sanger, a German ichthyologist, described "*Poecilia poecilioides*" thus legitimizing the trade name used for the Jamaican guppies imported into Germany in 1910. In any event, 1913 was the year that the nomenclatural situation of the guppy was greatly clarified by the well known British ichthyologist, G. Tate Regan.

In his pioneering revision of the livebearer subfamily Poeciliinae, Regan lumped *Lebistes poecilioides* "*Girardinus guppy*" "*Poecilia reticulata*" *Acanthophaeus reticulatus*" and "*Acanthophaeus melanostomus*" under the name "*Lebistes reticulatus*." Thus Regan recognized that all these fishes represented the same species. (He was mistaken only in including Eigenmann's "*Acanthophaeus melanostomus*" which is, in reality, a mixture of species. *Poecilia picta* and *Poecilia parva*.) Since Regan believed *Lebistes* to be distinct from *Poecilia*, he kept the guppy in the former genus, altering the ending of the specific name to agree in gender. For many years afterwards, the scientific name of the guppy was recognized widely as "*Lebistes reticulatus*" although in 1920 Milne-Edwards considered *Girardinus* to be a subgenus of *Girardinus* and renamed the guppy "*Girardinus reticulatus*."

Also, a number of invalid trade names such as "*Poecilia petraea*" were used at times. It was only in 1963, when Rosen and Bailey, American ichthyologists, published their notable revision of the Poeciliidae, that the scientific name of the guppy was readopted as *Poecilia reticulata*. In what form it remains today. Since Rosen and Bailey consider *Lebistes* to be a subgenus of *Poecilia*, the full scientific name is *Poecilia (Lebistes) reticulata*, although it is not necessary to use the subgeneric term in either general scientific or popular writing or conversation.

My apologies to readers for subjecting them to the nomenclature rattle-dazzle here of this history of the guppy, but it is important to know something about the terminology used and its validity if one is motivated to read original accounts of the guppy and to conduct one's own research. The picture will be brighter in subsequent parts of this history, as we now explore the role of the guppy in the aquarium hobby world of both the United States and Great Britain.

THE FIRST VARIETIES APPEAR

The guppy enjoyed wide distribution throughout the hobby after its introduction in 1908, in spite of competition from larger and more dramatic livebearers such as

(continued on page thirteen)

the swordtail, the platy, and the mollie. The 1920's were slow years in the development of both the hobby and the guppy. Paradoxically, it was during the depression years of the 1930's that the hobby experienced an awakening which added many new hobbyists to the fold. Aquarium development of the guppy progressed rapidly during this period so that by the early 1930's a number of guppy strains were available.

LACE GUPPIES

The most important to be developed in the United States during this period were the lacefish. The lacefish was developed by Henry Kassar, Jr. of Cliffside, New Jersey. This strain was characterized by a lace-like black marking or pattern on a light-yellow background.

By 1933 Kassar had placed a good quantity of this strain on the market selling them

from his store in Cliffside. It proved to be one of the most popular in the hobby. Ironically, these lacefish guppies were imported by the British who subsequently improved them and sent them back to the United States where they were known as English guppies.

The chainfish (or just chain) guppy sports an irregular dark line from the top of its head at eye level to back to about the middle of the dorsal fin. The bird's-eye dorsal had a black spot and many of the strain had very long, pointed dorsals. Both of these strains were on the American market in 1933. These three varieties were not, by today's standards, impressive, but they served to make the guppy one of the most popular aquarium fish of the times.

GOLD DISCOVERED

The gold guppy was introduced in 1933 by a Swedish aquarist named Fredlin

who sent some to Germany. They caused a considerable sensation there and four males were sent to Frederick L. Stoye, a prominent aquarist, author and illustrator in the United States. Although it was called "*Lebistes reticulatus* variety Fredlin," the name that we know it by was given to it in 1944. Fredlin, who started work on this strain about 1930 produced a fish with a true, fairly dark, gold body coloration. This characteristic has been transmitted to a number of strains popular today.

GIANT SWORDS

Also in 1933 William Srenke introduced several strains. Srenke was a pioneer fish breeder and operator of the Sunnyland fish farm in Florida. He produced strains with a single upper spine on the tail of the male (top sword), strains with a single lower spine (bottom sword), and strains with a spine top and bottom (double sword).

(continued on page fourteen)

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PREPARATION FOR SHOWING

By Lou Wrenstman
Excerpt From "How to Raise Show Guppies"
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Preparation for showing begins the day my guppies are born. The first six weeks of feeding will make or break a show guppy. At the age of four weeks, remove all females from tanks housing males that have been designated for showing. There are several reasons for this: the females grow bigger, take up space and eat more, and the males are constantly chasing after them. My show tanks are cycled more ruthlessly than tanks in which I raise guppies to sell.

At three months of age only ten to twelve males are kept in a ten gallon aquarium so that they are not crowded. Males require a large amount of room for rapid growth and proper development.

Vitamin: At five months I begin using Vitamin B-12, add 1 cc of water soluble B-12 (each cc contains 1000 mg.) for

every ten gallons of water, every week. My black guppies are very susceptible to tail spilling, so I use 2 cc's per ten gallons of water twice a week. Two weeks prior to show time, increase the usage of B-12 to every other day.

Trimming Guppies: Although I do not trim the caudal fins of my show guppies, many breeders do. If you have a guppy that you would like to show but it has a ragged caudal fin, you can carefully trim that part off and show the guppy. Always wet your hands when handling a guppy. Make sure to wet the platform where you will place the guppy. Lay the guppy down and use a brand new razor blade to cut with, as you need a very sharp blade. Place the blade at a slight angle and cut straight down.

Do not use a sewing action. Just cut down and away. Trim off as little as possible, because a guppy with a large caudal has a better chance of winning than one with a smaller caudal. Now, pick up the guppy gently with your hand so that

you have access to the wound. Spread the caudal fin and paint it with a 2% solution of Mercurochrome. Make sure that no Mercurochrome gets into the guppy's gills, as it can cause damage to them. As an extra precaution you could repaint the caudal fin in two days.

Enhancing Guppy Color: Many breeders of show guppies use special foods just before show time for the purpose of enhancing the color. Black guppies, for example, can be made blacker by feeding them prepared foods that contain additives that bring out the black color. Foods like this should not be fed all the time, only in small quantities twice a day just prior to a show (starting no more than a week before show time).

Final Preparations: I stop feeding at least twenty-four hours prior to shipping. This decreases the contamination of the shipping water from guppy waste and uneaten foods. Adult guppies are not harmed by missing a few days of feeding. My show guppies get their last feeding on a Wednesday night and are not fed again until the following Monday night.

and lyretail). Orange and red colors predominated on these and chainlike markings were also characteristic. It is interesting to note that in inbred strains during these years fish with elongated dorsals and the various sword variations tended to appear. The Stenka strains were the first commercial offerings in the United States of such offerings.

Another of the strains produced during the early 30's in the United States was the black guppy. The male fish was somewhat dark in general, but sported an all-black tail fin. This fish resembled the British colorball in that the central rays of the fin were somewhat elongated. Some of these black strains tended to have longer tails which were both broader and longer than usual. In February of 1934, O.M. Black, the proprietor of the Park Slope Aquarium Store in Brooklyn marketed the first black veiltail guppies. The males had long veiltails of smoky-yellow which turned jet-black when the males were courting. The females of the pure strain had a black crescent in the tail.

FIRST EXHIBITION

The next major accomplishment in the guppy hobby has been frequently mentioned in passing in aquarium literature, but has not received the attention it deserves. In late October of 1934, the Bay Ridge Aquarium Society of Brooklyn held an exhibition of aquarium fish and there was featured a spectacular assemblage of guppies. The society offered gold, silver and bronze medals for the classes. Two guppy classes were sanctioned: Lyretails and Any Other Variety (AOV). As might be expected, leading guppy breeders of the day entered. Some of the guppies exhibited were later sold for as high as \$5.00 per pair, a fancy price to pay with the dollar worth it was then and in the middle of the depression recovery to boot!

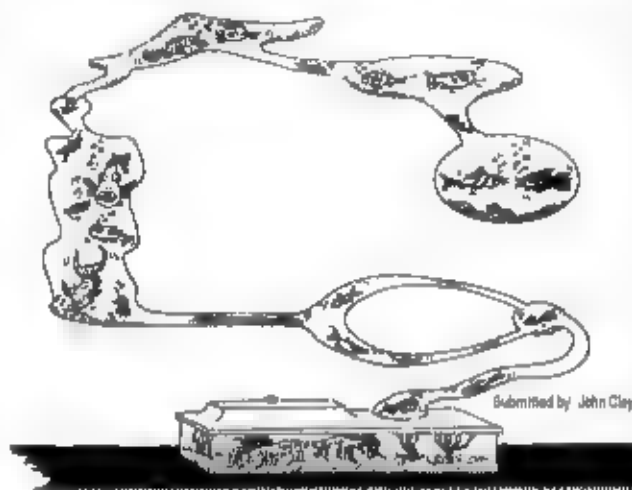
The gold award in the AOV category for guppies went to Charles E. Vlasek of Brooklyn who was one of the oldest of the old-timers and a gentleman of considerable stature among aquarists. Twenty years earlier he had been active in helping the hobby get organized and after many years of breeding fancy goldfish and

accumulating many awards, he turned his talents to the breeding of guppies. At the time of the competition, Vlasek maintained a fish hatchery in Brooklyn.

Vlasek's gold medal winner was a half black male veiltail all of two inches long. The length of the tail on this fish was equal to

the length of the body. The tail was coal black and the color extended half way along the body toward the head. The dorsal was extremely long and also black in color. This was a very long step toward what we know today as the half black veiltail guppy. It is important to recognize

(continued on page fifteen)



also that, like the O.M. Black veiltail, the veiltail was bred true to type. Although he received the medal for one particular fish, he had developed a significant strain. Because it is clear that he was the first to develop a true half black veiltail, Vlasek, along with Henry Klasek, should rightly be inducted into a Guppy Breeder Hall of Fame.

CREAM

By 1934 the following guppy tail shapes were available: rectangular round or square, lyretail, upper sword, lower sword, double sword, and veiltail. From approximately 1934 to 1937 additional varieties were developed including the spear-tail (a moderate extension of the middle ray of the tail and Bohemian gold). The latter is the tank of a Czechoslovakian breeder and is the fish we know as cream. It is a light-yellow, almost translucent, but

not albino. It arrived in the United States about 1937 and for a while was known as the white guppy.

INTO THE 30'S AND 40'S AND MORE PROGRESS.

The Bragg guppy was a popular strain in the mid-1930's. It was developed by a Midwest fancier and had a lyretail with a reddish-brown marking on the back which came down to about the middle of the sides. Around it were wavy broken lines of iridescent white. The black markings on the tail often gave it a squashed appearance in spite of its ray extensions.

THE 1930'S

Also during the 1930's a New Jersey physician and member of the prestigious New York Aquarium Society, Alfred W.

Abbas, started development of a strain of guppies based mainly upon the lyretail and swordtail forms common at the time. By the year 1938 he had produced a magnificent strain of large-bodied fish with long axonal fins and extreme sword-like extensions on the upper and lower caudal lobes. The swords were often longer than the body of the fish, prompting some to refer to it as a "superdolphin." The males were also extremely colorful which greatly increased their desirability. Abbas guarded the strain closely, but he did give several to Dr. Myron Gordon, renowned fish geneticist of the New York Zoology Society. From these Dr. Gordon obtained a number of albinos in the early 1940's.

PROGENITOR

The Trunked guppy was a popular

(continued on page sixteen)

GUPPY VARIABLES: PART FOUR MY FIRST GUPPY AUCTION

By Stephen Kuebler
Big Apple Guppy Group
Bronx Guppy Club
East Coast Guppy Association
South Jersey Guppy Group

In the weeks leading up to the guppy auction began discarding fish and setting up clean tanks. I was getting very antsy but, then Sunday came and Frank Schulerbrandt and I were soon on our way to South Jersey to purchase quality guppies. When we arrived at the site and we entered the auction room, I was amazed. There in front of me were tables with bowls of the most beautiful guppies I had ever seen.

After looking over all the bowls I found it hard to decide what I would bid on. What really got my attention were the half black blue-green guppies. These fish were stock from one of the best guppy breeders I would ever meet. His name was Mike Regent. Besides breeding half blacks he was also the IFGA class champion for greens. I knew I could acquire his strain of half blacks I could not go wrong.

Mike had a good reputation for quality. I was told, also met Dennis and Barbara Hirth, Clint Price, Ted Manning and Dave Polunas who to this day is one of my closest guppy buddies. I was able to leave with the strain I wanted. I also bought a trio of blue-greens. The prize guppies went for at this auction I have rarely seen again. Some trios went for seventy to one hundred plus dollars. Don't forget, this was 1979. Frank had started me off in the right direction. I now had quality guppies to begin my breeding program.

Several breeders from the New York City area with the direction of Frank Schulerbrandt were putting together a new club. With the help of hobbyists like Warren Burke, Fred Salady, John Eng and myself we formed the Big Apple Guppy Group.

It was with great pride when The Big Apple became a member club of the IFGA. In the beginning we held our meetings at the homes of different members. This was okay at first but in time we increased our membership

beyond our expectations. We desperately needed a monthly meeting place. The Queens Botanical Gardens became available and to this day the Big Apple Guppy Group meets there.

Well the fish purchased from the auction proved to be of excellent quality. The first broods of young were doing great. They had good size as well as color. I was able to select my new breeders within six months from the date of the auction and within the first twelve months my entire fish room was full of show quality fish. I realized that would have to devise a practical breeding program if I was to continue producing show fish.

I had read an excellent article on record keeping by Midge Hill. She mentioned the importance of maintaining accurate records of all offspring and breeding. From this article I adopted her basic ideas into my own format. Instead of using index cards I decided to use a small book. Regardless of what method you use, without keeping records you will eventually loose track of your strains and their heritage. This becomes very important when selecting new breeders and especially when attempting to outcross or linebreed.

Next Month: Part Five "Keeping Records"

strain during the early 1940's. There is no evidence that the strain originated in Trinidad, but it was exceptionally colorful. The fish were fairly large and were marked with black, mostly in the form of spots. The tails of the male tended to be bright yellow edged with brown or black. Most importantly, however, was that the females often showed color, particularly in the tail fin. This was of great genetic significance because the strain subsequently formed the basis for broadtailed guppies as we know them today.

The Blacks and the vivid veiltail strains died out or were not used in the development of the broadtails. These fish, although not equal to the veiltails of today, certainly could have formed the basis for the development of the broadtailed guppy. Perhaps black guppies were at a disadvantage compared to the more showy black mollies, or perhaps fanciers just preferred colored guppies, but a likelier reason is that the United States experienced a depression in 1936-37. Many hatcheries and fish stores went out of business and the hobby lost many of its followers. Unlike the depression of 1929-30, when the hobby actually experienced a rebirth,

this depression affected it with disastrous results and it did not revive after World War II. We now need to backtrack a bit in time to turn our attention to several important events in England.

FIRST SOCIETY

In 1937 the first Cultivator's Circle, a famous British aquarium society, formulated the first guppy standards in history. They provided for some variation in fin shape, but gave preference to blond bodied fish with tails shaped like a Greek fan. Also in this year a number of enthusiasts announced that a meeting would be held at the Coach and Horses Hotel in London to see if sufficient members could be found to form a guppy specialist's group. About thirty people attended and the Guppy Breeder's Society (GBS) was formed the following year with headquarters in London. The GBS published its first yearbook in 1938. Needing some rules to guide the judging of their fish, the Society devised and published standard outlines and point allocations in the 1938-39 yearbook. Five tail shapes were included: spear tail, lower sword, upper sword, double sword, and roundtail. No females were shown and three basic body colors were recognized: gray, blond, and gold. Thus 1937 saw

the birth of the first guppy specialist organization and in 1938 the first significant guppy standards. Whether or not we give the nod to the United States in the race to develop new strains of guppies, England is a clear winner in the matter of formal organization and standards.

A MISREADING

A.E. Robson of High Gals, London one of Britain's early successful guppy exhibitors, developed what came to be known as the Robson guppy. For a number of years guppy breeders had attempted to introduce color into the comparatively colorless female but with little success. Because Winge's work on the genetics of the guppy (the pioneering scientific work on the subject) emphasized the importance of the male to the virtual extinction of the female, it was thought impossible to introduce color

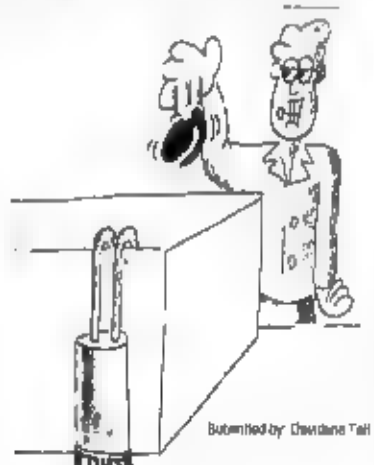
In 1934 Frederick Story wrote, "According to Winge, males transmit their color to their sons, regardless of the females they are mated with, or the fathers alone are responsible for the colors of their sons and the mothers have no influence upon them." In all fairness, however, this was a misreading of Winge by Story. This

(continued on page seventeen)



Submitted by Nick Visser

"Hey! Not so fast turning those pages!"



Submitted by Christine Tait

Jim deals with his nematode problem once and for all

notion persisted in the hobby for many years. Robson, however, produced a strain in which the females sported a large round jet-black tail and a black dorsal. In addition, they had a delicate blue-green sheen on their bodies and their ventral and anal fins were edged in blue. The males lacked the black spots characteristic of the common guppy of the time, but they did have their tails and dorsal fins edged in black.

Although it was originally reported that Robson obtained his strain from a cross between a black-tailed male and a cream female, the truth of the matter was that he started with imported females that exhibited much black in their fins. In 1947 Robson received the Fellowship Award for his guppy strain, but by the middle of the 1950's, the strain had all but disappeared.

THE WAR YEARS AND BEYOND

The first Annual Guppy Show (and the first to be held in Europe) took place in 1938. Mr. Sniller, Manager of Batindges Public Aquarium and Keeper of the King's Aquaria, was asked to judge. The Guppy Breeder's Society soon faltered however, when Great Britain went to war in 1939. Its members were called to the Colors and attendance dropped to a mere handful. Most of the founding officers were now in the armed forces and the Dean of British guppy breeders, W.G. Phillips, took over as Secretary and Acting Chairman.

PINTAIL

In 1940 a fish sired by roundtails appeared that had a long extension from the center of its round caudal fin. Mr. Phillips, the breeder, entered it in the only class possible, AOV - any other variety (then standard outlined) under the name "spiketail." One member suggested that it had a shape similar to the pintail duck, and the name "pintail" stuck. In 1949 an official standard for this variety was adopted by the GBS. Because of the war most aquarium societies in Great Britain were now suffering and to help with the finances the GBS merged with the North London Aquarium Society

After the Crown Hotel, where they still met, was bombed, the club moved

to a small cafe owned by one of the members. It proved excellent for their monthly gatherings and shows. For a short time membership picked up until once again the bombs rained down on London and the cafe was demolished. Meetings were moved to a large church hall devoid of everything except a long table flanked by benches because all of the interior furnishings had been removed to a safe place to avoid bomb damage.

Here the enthusiasts gathered on Sunday mornings and it says something for their interest when meetings were constantly interrupted by both air raid sirens and the church organist running through his repertoire preparing for the evening service. Members of the armed forces on leave swelled the gathering and the subsequent demand for guppies became quite acute. The price of good breeding fish jumped to about three dollars. In the closing days of the war their old headquarters at the Crown Hotel once again became available, and the society moved once more. Finally, because of the proliferation of local guppy groups associated with the GBS, it was decided in 1949 to change its structure to that of a federation. Thus resulted the Federation of Guppy Breeder's Societies (FGBS). The GBS was no more.

PAUL HAHNEL

During this time, guppy breeders on the other side of the Atlantic were not inactive, and one breeder destined to forever occupy a niche in the Guppy Hall of Fame was Paul Hahnel, a Bronx cabinet maker. While the British were focusing their attention on inward tail types, Americans were developing male guppies with broad, colorful tails. Hahnel was the first breeder whose guppies received widespread acclaim during this period. By 1950 fish derived from his stock began to appear in local shows in the eastern part of the United States where they took the guppy world by storm.

These early broadtail guppies were somewhat indefinite in tail shape. One, of large body and fairly wide tail, was referred to as a veiltail. Another with smaller body, less color but larger tail,

was called a "triangle tail." This American development was something the English could not ignore and the introduction of broadtail strains into England prompted the FGBS to develop in 1951 two new standards: veiltail and scartail. These standards were quite premature, however, as the overall development of broadtail strains was scarcely underway.

In the United States, interest in broadtail guppies was intensified. Breeders such as Hahnel, Sierke, Auger, Wank, Konig, Rutkowski, McAllister, Scala, and Sweeney made their contributions and developed their strains. In 1957 a milestone on the American scene occurred with the formation of the American Guppy Association (AGA).

Although many participated in the development of this organization, Lawrence Konig was its recognized driving force. In appreciation of his efforts the Northeast Council of Aquarium Societies named him Man of the Year for 1957-58. Dr. John Rutkowski was named Interim President, and William Sierke was issued Membership Card No. 1, a well deserved honor in view of his long service and many contributions to the guppy hobby.

In order to stimulate interest in the guppy, Konig and his colleague Dr. Rutkowski offered a free pair of their guppies to every aquarium society willing to form an AGA group among its members. Their stock was supplemented by those of Henry Kaufman, Phil Scala, Lewis Rexford, and Arnold Sweeney. Over two hundred pairs of prime stock were distributed. This single act, most assuredly unprecedented in the history of the aquarium fish hobby, motivated the guppy specialty to a prominence never before attained.

An abortive and somewhat ridiculous attempt to be the first to prepare American guppy standards was that of the so-called "American Federation of Guppy Societies," an organization that existed mostly on paper. Its standards, published in 1957, copied the British standards but were virtually ignored by serious guppy

(continued on page eighteen)

fanciers on both sides of the Atlantic. German guppy breeders essentially adopted the FGBS standards, and a number of truly international shows were subsequently held in Europe.

The FGBS vaulted and scantill standards proved unwelcome as the newer and more popular American strains did not conform to them. In 1959 the Secretary of the Lancashire section requested that the FGBS devise standards for these broadcast fish, but the Management Committee of the FGBS refused. Consequently, the Lancashire section disbanded, reorganizing as the Fancy Guppy Association (FGA). In 1961 they published their own standards and soon outdistanced the FGBS in number of members. In the United States the Better Guppy Guild of Chicago proposed a set of standards in 1967 that did have considerable merit, but they were not illustrated and consequently were of little practical guidance to judges.

In 1961 the AGA's own standards were adopted and although criticized by some groups, came to be widely

used. As with the British, American guppy groups suffered fragmentation starting in the 1960's. Although there was some disagreement over standards as have noted (the AGA standards were revised in 1965), the major issue was over centralized versus decentralized control. Another difficulty was that the AGA refused to issue its own publications preferring instead to rely upon the pages of the commercial aquarium publications for this purpose. Thus, local and regional guppy groups were formed, the AGA itself losing much of its influence in the process. It has served its purpose, however, and its significance in the development of the guppy specialty in the United States has never been equaled.

In England the FGBS and the FGA finally agreed in 1967 to a single set of standards, and thus the situation in England and the United States bore some resemblance to each other, i.e., general agreement on standards but a proliferation of groups. The latter, however, is extreme in the United States. Unlike the killifish and cichlid fanciers, the American guppy fanciers did not develop a strong,

centralized specialty club until the formation of the International Fancy Guppy Association (IFGA). (The History of the IFGA will appear in next month's issue of the Guppy Roundtable).

CONCLUSION

This is the history of over a century of the guppy. Clearly, have concentrated on the early period—that of time little known by present day aquarists. Because my own entry into the aquarium hobby dates from after World War II (my first aquarium article was published in 1950), have been reluctant to offer my own interpretations of the postwar period, short of the most significant events. It is my hope that, in another twenty years, when time has mellowed opinion and indicated the true effect and value of events, another aquarium historian will come along to fill in the details of this most fascinating era in the history of the guppy hobby. But for now, salute the guppy, that tiny fish that has given so much enjoyment to so many people, and salute as well those great hobbyists and scientists who have made this history and contributed to its story.

GUPPY GAMBITS

By Midge Hill
Pan Pacific Guppy Association
Extracts From IFGA Bulletin, August 1974

What causes mutation? In puppies in the first place? What is a mutation? Basically, heredity is self-reproduction, and the units of self-reproduction are the genes. Justly genes create exact copies of themselves, but once in a while something goes wrong with the copying process, and a gene is formed that varies in some way from the original. This change can affect a vital function. It can be as innocuous as a minor color change, it can be as dramatic as adding a double dorsal fin, etc.

Mutations arise from time to time in all organisms and have been fairly frequent in the prolific guppy. Although mutations have changed the short tails of the wild guppy into today's wide delta fins, mutations are by no means limited to fin shape. They can

affect color of body and fins, size or shape of body or fins, fertility, growth rate, behavior, internal structures, bodily functions, etc. With some mutations visual differences are almost non-existent; others are quite obvious. Still others, the vast majority, produce changes so drastic that the organism dies in the embryonic stage or shortly after birth. Most mutations are harmful to the individual in the environment in which they occur.

Experiments have shown the percentages of mutations can be increased by certain environmental factors: X-ray, ultraviolet rays, high temperatures, the use of certain chemicals, etc. An even easier way that has worked more than once for me, is to keep a female virgin until almost two years old. One such two year old female when bred (breeding does not always take at this ripe age) produced just one litter before dying of the shock of it all. However, in that one litter was one albino. Apparently a true

mutant as the albinism occurs on a different gene from any other albino I have ever found in the fifteen years I have worked with this strain) and two pairs of Siamese twins. Another virgin bred for the first time at about eighteen months threw two fry with double dorsal fins. (Unfortunately, careful breeding of a number of generations of fry from one of these unusual fish never produced another double dorsal, leading to the belief that the "error" occurred in the process of cell division rather than altering the hereditary pattern.)

Even though the majority of mutations are of little use to either the breeder or the guppy itself, an alert breeder can sometimes spot a mutation which makes possible a new characteristic for our guppies. And much progress can be made if it is remembered that mutations need not be only used to enhance the outward appearance of the guppy. Mutations can be used to breed more disease-free, fish with more active mating displays, fish with more or less aggressive personalities, the list is endless.

SHIPPING FISH TO A SHOW

By Rose McCrory
Celebrity Guppy Associates
Extracts From IFGA Bulletin, March 1963

At the beginning of each show season we present tips to the beginners on what to do to prepare for a show. If you are unable to attend you can always ship your fish. It is not really that difficult and the fish are very safe if they are packed properly. Many beginners do not realize how many people ship their fish all over the world. All it takes is a little care in packing, some knowledge of the handling process at the post offices and some common sense. The following is a list of things you should have on hand to ship your guppies to a show.

1. Cardboard box
2. Styrofoam container
3. Plastic bags
4. Rubber bands
5. Permanent marker or labels for bags
6. Filler material
7. Sealing tape
8. Shipping labels
9. Entry forms (for shows)

1. The cardboard box is to protect the styrofoam container. It should be large enough to hold the container. Many people ship without putting it in a cardboard box, but it is safer and does not add much to the cost of shipping.

2. The styrofoam container should be at least 1/4 inch thick for insulation from heat and cold and large enough to hold all of the bags of fish without being too tightly packed. The lid should fit snugly and you should tape it closed once the bags of fish have been placed in the container.

3. The plastic bags that work best for shipping are four inches wide and at least 10-12 inches long. Larger bags can be used but they require more water which increases the postage cost. Smaller bags, such as betta bags are used successfully but should not be used for show females because females need more room.

4. Any size rubber bands can be used.

5. Each bag should be marked either with a permanent marker or with separate labels. A permanent marker is used because the ink will not run if the bag should get wet. You should mark the bags to correspond with your entry form so that the entries can be sorted easily.

6. The filler material can be just about anything that fills up any excess space in the container to prevent the bags from rolling around. Some people use styrofoam peanuts or newspaper, but plastic bags filled with air are less of a mess.

7. The sealing tape should be used to seal all edges of the box as well as sealing the lid of the styrofoam container.

8. The type of shipping label you use will depend on how you plan on shipping your fish. Most people choose Express Mail through their local post office which has its own special shipping label. Whichever method of shipping you use it is always important to include a phone number on the label so that you or the person you are shipping to can be contacted by the shipper if there are any problems. You should also write your name and address on the box in case the label comes off.

9. Your entry forms for a show should be the standard entry forms used by the IFGA. They should be done in duplicate and enclosed in a plastic bag so that they do not get wet.

It is a good idea to watch the weather before you attempt to ship your fish. If the temperatures are in the forties or lower in the evening you may want to include a heat pack to keep them warm. There is always a risk that your package could all on a loading dock and the chill may be too much for the fish. The same holds true if there is a heat wave. You would not want your fish to get too warm.

Our club was fortunate for our show last year. Although temperatures were into the forties, we contacted our airport postal facility where all of the mail travels through, and told them of the fish that would be arriving for our club. They were asked to hold the fish for us and they called us each time a box arrived. Not all facilities will be

this cooperative but it does not hurt to contact them and ask them what can be done to make sure that they handle the packages in the proper manner. It helps if you mark the box "LIVE TROPICAL FISH PLEASE KEEP WARM".

Now that you have all of your supplies and understand what can happen during shipping you can prepare to ship your fish. First of all, it is very important that you DO NOT feed the fish that you plan on shipping for at least twenty-four hours before you bag them. This will prevent their waste from soiling the water during shipping. A fish, properly prepared, can live in a bag for many days but if the water starts to sour it will surely die and it can even cause the water in the other bags to sour, causing the other fish to die.

Only one fish should be placed in each bag with about a cup of water. Grab the top of the bag to hold some air in it and the twist the top of the bag until it almost tight. Do not make it too tight because if the fish are shipped by air the change in pressure can cause the bag to burst. Now bend the twisted end down and secure it tightly with a rubber band. Take a second bag and put the first bag, twisted and first, into it. Twist the top of it the same way you did the first bag and secure it with a rubber band. By inverting the first bag you eliminate the chance that a fish could get trapped in and if one bag leaks, the other bag should keep enough water in it to keep the fish alive.

Once you have labeled your bags, place them in the styrofoam container. It does not matter how you put them in as long as the water is covering the fish. Now, fill up the excess space with the filler material, include your entry form and put on the lid, tape the lid on, place in the cardboard box, seal it, label it and it is ready to go.

It is always a good idea to call the person who will be receiving the fish to tell them that you will be shipping them. Tell them the time that the post office has advised you that they should arrive. With Express Mail, make sure that you keep your copy of the shipping label because, in many cases, if the fish do not arrive on schedule you may be able to get a postage refund. Many people who do not have the time or money to attend a show can at least have the option of shipping their fish.

FISH NUTRITION AND THE AQUARIST (THE BALANCED FRESH FLAKE DIET)

By John Kulus, Ph.D.
Marden Laboratories, Inc.
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Fish nutrition is a very complex subject. The biochemical processes involved are just as complicated (and similar, since mammals evolved from fishes) as human nutrition

Foodstuffs are broadly classified into major groups according to their function in nutrition: these are carbohydrates, fats, minerals, proteins, and vitamins. Protein is the body-building part of a food and is used by growing fish to increase in size and by grown fish to repair and renew tissues. Protein itself is a complex mixture of huge organic molecules that contain Nitrogen and are called amino-acids. Proteins are broken down during the process of digestion and absorption to their component amino-acids. They are transported via the blood-stream to tissue sites where the amino-acids are recombined into protein. Fish contains some twenty amino-acids (the same as humans) that is why fish is a good food

for us to eat. These amino-acids are combined in different ways and different proportions to give one specific "body" be it a shark or a guppy. (With twenty plus variables the variety is practically infinite, hence the same process produces a flea or an elephant, depending on the genetic control of the particular organism.)

The fish does not need all twenty amino-acids because it can further metabolize the protein fragments and convert one type of amino-acid into another. But not all. There are some that must be present and in the correct minimum proportions, these are called essential amino-acids. The number and type vary slightly among species, but on average there are nine or ten essential amino-acids. If even one of these is missing, or is below a critical level in the diet, the fish cannot use the protein supplied, no matter how high the level present. It is like building a wall, with component bricks being amino-acids. If a layer of bricks is missing, the wall falls no matter how many bricks are available.

If all the essential amino-acids are present

in the right proportions, the protein is said to be of good quality. A good quality protein is found in eggs because nature has designed this as food for a rapidly growing embryo. Where the essential amino-acids are low the protein is said to be of poor quality. An example is vegetable protein because the vegetable kingdom uses different essential amino-acids to the animal kingdom. This is why soya protein has to be supplemented with an amino-acid called methionine to make it suitable as animal feed.

If a poor quality protein is used in a fish food, the level of that protein has to be high to bring the essential amino-acids up to the required minimum levels. Examples are fish farm pellets which, for commercial reasons, have to be made as cheaply as possible. High levels of poor quality protein are often a cheaper method of getting the correct amount of essential amino-acids than lower levels of high quality protein. Supplementation with pure amino-acids than lower levels of high quality protein. Supplementation with pure amino-acids has to be kept to a minimum because they are so very expensive.

One of the drawbacks to using such high levels of protein is that the food becomes
(continued on page twenty-one)

THE SHOW ITSELF

By Art Hopkins
Excerpt From "How To Raise Show Guppies"
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When your guppies have been received by the club member responsible for shipped-in fish at the show, they will be taken either to his home or directly to the show for benching, depending on how long before the show they have arrived.

During benching, the shipping container is carefully opened. The guppies, along with a small portion of the water they were shipped in, are carefully poured into half gallon drum bowls which contain fresh water. They are then registered, labeled and put on the show bench according to color class.

Normally benching takes place on Friday and Saturday, and judging begins late Saturday afternoon. When judging is taking place, depending upon the show rules, you may be allowed to follow along with the judging teams. Often you are permitted to ask the judges questions about why a particular entry is either chosen or disqualified after the judging of that particular color class is completed.

After the judging is completed, the show is generally open to the public for viewing. An auction (bidding or silent) often follows the award presentation. I normally do not permit my guppies to be auctioned, but some participants do. The rare exceptions to my attitude are the California, Chicago or New York shows, because the guppies usually command a higher price at shows in those areas. Normal practice is that 25% to 50% of the auction sale price is retained by the club hosting the show.

After the show your guppies are carefully packed into fresh bags and re-packed into the shipping container they were sent in, which is then taken to the airport for the journey home.

There are usually from eight to twelve shows per year sanctioned by the International Fancy Guppy Association in various parts of the country. Normally, two or three of these shows are accompanied by important IFGA meetings. These are the shows which I try to attend personally. The meeting and banquet are generally held on Saturday and Saturday evening of the show weekend and are attended by all the guppy people you usually only read about. These experts are friendly and free with their knowledge of fancy guppies, and the ball sessions are often the highlight of the show. The shows are an excellent opportunity for burgeoning guppy breeders to accumulate a wealth of information from the country's top

nutritionally unbalanced. Surplus protein is used in the production of energy and the by-products are excreted. Such residues contain the nitrogen of the proteins and are excreted as ammonia and urea. In the ponds and rivers of the commercial fish farm, this is less of a problem than it is for the aquarium keeper. Excess protein definitely pollutes the small volume of water in aquaria.

Some pet fish foods are also unbalanced in that they contain excessive protein levels. This is due to the use of dried meals as a source of protein material. Although the original meat or fish etc. may contain good quality protein, the intense heat processing in powdering the food damages some of that protein, changing it to the poor quality class. As with cheap proteins, high quantities are then necessary to bring the essential amino-acids to the minimum levels.

If a food contains good quality protein at the levels required by a fish, then that fish utilizes practically all of the component amino-acids and little tank-polluting nitrogen is excreted. The energy supply is then taken from metabolism of the carbohydrate and fat components of the foodstuff and this group of compounds only give Carbon dioxide and water as residues, excretions of which do not pollute the aquarium.

Another factor is that a growing fish requires a lot of protein but a grown fish obviously requires much less. Commercial pellets are designed for rapid growth but most pet fish require only a maintenance level of protein, the excess being wasteful and polluting.

There are many other factors in fish nutrition, vitamin levels for example. Fats, too, are very important. There are essential fatty acids just as important as the essential amino-acids. Fats are stored mainly as oils in fish (just think of a herring) and so adequate levels of these compounds are necessary in a balanced diet.

What are the ideal levels of protein and fat? Obviously research on a world-wide scale continuously revises recommended levels. Work at the Animal Studies Centre, Waltham-on-the-Wolds (the foremost authority in Europe on pet care and

nutrition) has shown that growing fish require (on a dry basis) over 35% best quality protein and over 10% lipids (oils and fats). Adult fish need less protein (about 30%), but similar levels of lipids. There are variations according to species. For example Guppies need more animal protein than Molies and Goldfish prefer higher carbohydrate levels.

If the quality of the protein is lower then obviously the percentage figure must be higher to compensate, but the actual figure quoted on a food label can be misleading. The standard method of measuring the protein level of a given food is to simply measure the nitrogen content chemically and multiply by a factor ($\% \text{ nitrogen} \times 6.25 = \% \text{ protein}$ is the common formula). Hence any compounds present that contain nitrogen will be recorded as protein. A classic example in pet fish flakes is the use of gelatine. This is recorded as protein by analysis, but its food value is poor to say the least. A much better system would be to record digestible protein, but such analyses are costly and takes a lot more time than the simple nitrogen method.

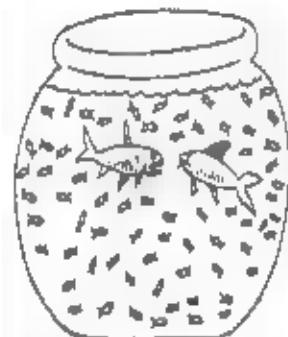
Advertising and marketing jargon has created a myth about protein levels. A good all-round diet for fish must be balanced and nutritious with the correct levels of trace elements such as vitamins and minerals.

That basic balanced diet should also contain nutrients that are specific to the needs of particular types of fish e.g. the Carnivores, the Herbivores, the Omnivores and fish with special feeding habits in the wild. An Aquarist may have any one of thousands of different species in his tank, so it is nonsense to claim that one single formula is "complete" and "nutritious" for all these fish, especially if it is also unbalanced by being too high in protein.

In the wild, fish eat plants and/or animals whose bodies contain anything from 70% to 90% (or more) water. Commercially-prepared foods contain as little as 2.8% moisture. In view of this, care needs to be exercised in determining the correct amount of flake food to be used. A reasonable amount will be that

consumed by the fish in question in a few minutes.

The purpose of this article is to acquaint the Aquarist with some of the complexities of fish nutrition. Some "experts" have said "the higher the protein figure, the better the fish food" which goes to prove that a little knowledge is a dangerous thing!



"Did you see any children for lunch?"

"Hey, Harold! Check out the great apt on the month's Playguppy Centfold!"



Submitted by "The Mystery Cartoonist"

PRESIDENT'S MESSAGE

Dear Members

The show season is underway with a fairly good turnout of 415 entries. Shows are an excellent place to gain new information and see how your fish look against other fish on the bench. Almost every time I go to a show, I return home and throw out several tanks of fish that did not measure up to entries I had seen at the show. Often times I would bring my fish to a show and could hardly believe how differently they looked on the show bench.

About 1984 I had some blues that thought were show stoppers. I would send them to show after show to no avail. Finally I was able to attend a show and see the fish on the bench. They turned almost black, with just a hint of blue at the peduncle. Most fish never look the same on the benches they do at home. Do not be critical of the judging if you were not there to see how your fish looked at the time they were judged. Pay close attention to the judging and try to learn the different lines that are on the bench. I would use

the shows to study the fish to determine the characteristics that were most favored in the different classes. I would also try to determine if any of the lines would complement my breeding program.

Frank Chang and I would usually bring extra trios to swap with other breeders at the shows. Most of the trades were pre-arranged on the telephone prior to the show. The shows are the best place to learn about raising show guppies. You meet some great people and you get very busy, staying up until two or three in the morning talking about fish.

Everyone raises guppies for different reasons. Some like the genetics, some like the competition, some like the friends and associations they form and some just plain like the beauty of the fish. No matter what your forte, attending the shows and showing greatly enhances your knowledge and appreciation of the hobby.

Until next month,
Jim Alderson

International Fancy Guppy Association Officers

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A BRIEF THANK YOU

By Stephen Kwartler
Big Apple Guppy Club
Brooklyn Guppy Club
East Coast Guppy Association
South Jersey Guppy Group

Well, the second half of our show season is underway. It seems that many breeders worked very hard over the winter improving their strains by the quality of the fish represented at the South Jersey show. I saw some of the best Half-Black Reds I have ever seen. Besides being among the largest fish entered they were of splendid color. Hopefully this is an indication of things to come. The Greens also showed some improvement, as far as color and dorsal size. What has happened to those Half-Black Blues, perhaps they have taken a short sabbatical.

I would like to offer my many thanks to all those who made the show a great success. It was people like Marilyn Johnson from New England Guppy who traveled all the way from Boston with the equipment, helped set it up on Friday and worked all weekend and then helped break down.

and then loaded up the trailer to return to Boston on Sunday that truly held this organization together. Thanks also to Jamey Magnifico and his lovely girls for their outstanding assistance all weekend. Thank you Judging Board Chairman, Mr. Paul Gorski for making the trip up from Virginia to coordinate the judging and participating in our auction on Sunday.

Thank you, Vito Pito and Bobby Schearschmidt and the rest of the East Coast Guppy Association for lending a big hand. I would also like to say thank you to all the members of South Jersey for making it through another show without any permanent scars. Remember pulling on a show requires hard work that drains the spirit as well as the body. We will all recover in time and hopefully will put things behind us and remember "all the fun we had".

There were several people who shipped their fish, but because of the change in weather suffered some severe losses. Sometimes we overlook how important it is to protect our guppies when shipping to shows. If some minor precautions are

taken we can usually avoid this. Usually wrapping each bag with newspaper as well as throwing in a heat pack into your styrofoam box will make all the difference for shipping to an early spring show. One shipper actually sent his entries in a plain cardboard box, wrapped his little bags with two insulated work shirts, and shipped them as overnight three day service. Obviously his fish never had a chance.

Well, soon we will all be meeting in St. Louis for the IFGA meeting show. I am looking forward to seeing everyone there. Remember if you are a delegate and cannot attend, you must contact the IFGA Secretary and request to have an alternate assigned to represent your club. Also any new clubs wishing to join, as well as existing clubs should send in your club rosters to the Secretary if you have not done so already.

It seems with the transition of the new secretary from the previous one, there has been some miscommunication, and our new secretary is more than willing to get the IFGA business in proper order.

Time to go back to work now, see you all in St. Louis next month at the Gateway Guppy Association show.

MESSAGE FROM THE EDITOR

I am aware that in certain segments of the country the delivery of the Guppy Roundtable remains problematic (unfortunately). Please be assured the Publication Staff of the Guppy Roundtable is committed to embarking upon whatever course of action is necessary to ensure each of our subscribers receive their issues not only as quickly as possible, but in pristine condition.

I am pleased to inform you that the Supervisor of the Second Class Mail Department at the General Mail Facility from which the Guppy Roundtable is mailed, is being very cooperative with my endeavors to ensure timely delivery of our newsletter. She requests that any subscriber of the Guppy Roundtable that receives their issue(s) more than seven

days from the date which it was mailed (distribution date is the twentieth day of each month), receives their issue(s) in poor condition, or does not receive their issue(s) to hand me a letter, note or post card (no telephone calls, can not very well tout my shower machine containing your complaints down to the post office) advising me of the problems you are experiencing (be sure to include your name, address and phone number).

In turn, she will contact the Postmaster at the applicable post offices across the country to advise them that the Guppy Roundtable is coming through their mail facility on a monthly basis and it should be delivered, handled and treated as Second Class Mail (I do not think we can ask for better cooperation or service than that).



Submitted by Richard Fleming



MAKO TROPICAL'S ATTENTION IFGA MEMBERS

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OFFICIAL INTERNATIONAL FANCY GUPPY ASSOCIATION SHOW RESULTS

SOUTH JERSEY GUPPY GROUP APRIL 9 & 10, 1994 FOUR HUNDRED SEVENTEEN ENTRIES

BEST OF SHOW TANK (THIRTY-FOUR ENTRIES)

FIRST PLACE JIM ALDERSON Red	SECOND PLACE JIM ALDERSON Half-Black Red	THIRD PLACE DAVID ESPINOSA Half-Black Purple	FOURTH PLACE JOSEPH SHURYAN Navy
------------------------------------	------------------------------------------------	----------------------------------------------------	----------------------------------------

BEST OF SHOW MALE DELTA (THIRTY-FOUR ENTRIES)

FIRST PLACE JIM ALDERSON Red	SECOND PLACE JIM ALDERSON Half-Black Red	THIRD PLACE DAVID ESPINOSA Half-Black Purple	FOURTH PLACE TOM & PAT ALLEN Purple
------------------------------------	------------------------------------------------	----------------------------------------------------	-------------------------------------------

BEST OF SHOW MALE SWORD/YEL TAIL (THIRTY-FOUR ENTRIES)

FIRST PLACE BIL KLEN Gambusia	SECOND PLACE BOB REBECH Novice	THIRD PLACE STEPHEN KWARTLER Vineyard	FOURTH PLACE M & M GOLIMOWSKI Half-Black
-------------------------------------	--------------------------------------	---------------------------------------------	------------------------------------------------

BEST OF SHOW FEMALE (THIRTY-FOUR ENTRIES)

FIRST PLACE DAVIDENE TAY Black/Grey	SECOND PLACE JOHN WOLFF Half-Black AOC	THIRD PLACE DAVIDENE TAY Bronze	FOURTH PLACE JIM & BRENDA THALE Half-Black Red
-------------------------------------------	----------------------------------------------	---------------------------------------	------------------------------------------------------

BEST OF SHOW MALE (THIRTY-FOUR ENTRIES)

FIRST PLACE JIM ALDERSON Red	SECOND PLACE JIM ALDERSON Half-Black Red	THIRD PLACE THOMAS JOFFRE Half-Black Purple	FOURTH PLACE VINCENT SNEYDY Blue
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BREEMER FEMALE (THIRTY-FOUR ENTRIES)

FIRST PLACE JOHN WOLFF Half-Black AOC	SECOND PLACE VINCENT SNEYDY	THIRD PLACE DAVE POLUNAS Bronze	FOURTH PLACE JIM & BRENDA THALE Half-Black Red
---------------------------------------------	--------------------------------	---------------------------------------	------------------------------------------------------

VEIL CLASSES

BOGIEYE COLOR (THREE ENTRIES)	HALF-BLACK (THREE ENTRIES)	SHANSHAN (THREE ENTRIES)	SOLID CAUDAL (FOUR ENTRIES)	VARIEGATED CAUDAL (THREE ENTRIES)
1 Tom & Pat Allen	1 M & M Golimowski	1 Bil Klen	1 Jim & Brenda Thale	1 Stephen Kwartler
2 Dwight Parton	2 Jim & Brenda Thale	2 Bil Klen	2 Jim & Brenda Thale	2 Jim Jiku
3 Dwight Parton	3 Elva & Marie Bryant	3 Bil Klen	3 Disqualified	3 Disqualified
4 Tom & Pat Allen	4 Jim & Brenda Thale		4 Disqualified	

FEMALE CLASSES

ALBINO FEMALE (THREE ENTRIES)	AOC FEMALE (FOUR ENTRIES)	BLACK FEMALE (FOUR ENTRIES)	BLUE/GREEN FEMALE (FIVE ENTRIES)	BRONZE FEMALE (FOUR ENTRIES)
1 Gary Mousset	1 Gene Golimowski	1 Davidene Tay	1 Davidene Tay	1 Davidene Tay
2 Gene Golimowski	2 M & M Golimowski	2 Davidene Tay	2 Davidene Tay	2 Davidene Tay
3 Gene Golimowski	3 Gene Golimowski	3 Davidene Tay	3 Davidene Tay	3 Tom & Pat Allen
4 Gene Golimowski	4 Disqualified	4 Davidene Tay	4 Davidene Tay	4 Disqualified
OLD FEMALE (SEVEN ENTRIES)	HALF-BLACK AOC FEMALE (SEVEN ENTRIES)	RED FEMALE (NINE ENTRIES)		
1 Steve Swallow	1 John Wolff	1 Jim & Brenda Thale	1 Davidene Tay	
2 Gene Golimowski	2 Victor Stasi	2 Frank Barta	2 Frank Barta	
3 Gene Golimowski	3 Jim Alderson	3 Disqualified	3 John Wolf	
4 M & M Golimowski	4 Stephen Kwartler	4 Disqualified	4 Frank Barta	

Paul Grist, Dave Polunas, Steve Gascobello, Ed Richmond, Jarney Magnifico, Marilyn Johnson, Stephen Kwartler

OBSERVERS

Dan Espinosa, David Hoff, Michael Schmitt, Elva Pringley, Jim Brockson, Maurine Brodes, Tom Joffe, James Nelson, James Nelson, Jr., Fred Fragasso, Vernon Stuart

SHOW SCHEDULE

SECOND HALF 1993 - 1994
SHOW SEASON

HEARTLAND GUPPY CLUB
SHOW DATES
April 30 May 1, 1994

GATEWAY GUPPY ASSOCIATED
SHOW DATES
May 21 - 22, 1994

COLUMBUS OHIO GUPPY
SPECIALISTS
SHOW DATES
June 25 - 26, 1994

FIRST HALF 1994 - 1995
SHOW SEASON

EAST COAST GUPPY
ASSOCIATION
SHOW DATES
July 16 - 17, 1994
RULES DUE DATE
May 1, 1994

PAN PACIFIC GUPPY
ASSOCIATION
SHOW DATES
August 4 - 7, 1994
RULES DUE DATE
June 1, 1994

NEW ENGLAND FANCY GUPPY
ASSOCIATION
SHOW DATES
August 27 - 28, 1994
RULES DUE DATE
June 1, 1994

GUPPY ASSOCIATED
INTERNATIONAL - CHICAGO
SHOW DATES
September 17 - 18, 1994
RULES DUE DATE
July 1, 1994

GUPPY ASSOCIATES OF
MILWAUKEE
SHOW DATES
November 4 - 5, 1994
RULES DUE DATE
August 1, 1994

ALBINO DELTA (SEVEN ENTRIES)	ALBINO TANK (THREE ENTRIES)	AOC DELTA (THREE ENTRIES)	AOC TANK (THREE ENTRIES)
1 Dwight Parton	1 Dwight Parton	1 Stephen Kwartler	1 Yvonne Burgess
2 Ed Richmond	2 Jarney Magnifico	2 Yvonne Burgess	2 Yvonne Burgess
3 Gene Golimowski	3 Bil Klen	3 Yvonne Burgess	3 Yvonne Burgess
4 Disqualified		4 Davidene Tay	4 Stephen Kwartler
AOC BICOLOR DELTA (FOUR ENTRIES)	AOC BICOLOR TANK (ONE ENTRY)	BLACK DELTA (FOUR ENTRIES)	BLACK TANK (THREE ENTRIES)
1 Jarney Magnifico	1 Jarney Magnifico	1 Frank Schulzebrand	1 Frank Schulzebrand
2 Dave Polunas		2 Frank Schulzebrand	2 Frank Schulzebrand
3 Disqualified		3 Frank Schulzebrand	3 Frank Schulzebrand
4 Disqualified		4 Frank Schulzebrand	4 Frank Schulzebrand
BLUE DELTA (THIRTY-ONE ENTRIES)	BLUE TANK (SEVEN ENTRIES)	BLUE/GREEN B DELTA (FOUR ENTRIES)	BLUE/GREEN B TANK (FOUR ENTRIES)
1 Fred Fragasso	1 Vio Pico	1 Elva Poy	1 Elva Poy
2 Jim Alderson	2 Fred Fragasso	2 Elva Poy	2 Elva Poy
3 Ed Richmond	3 Jim Alderson	3 Elva Poy	3 Elva Poy
4 Fred Fragasso	4 Jim Alderson	4 Davidene Tay	4 Elva Poy
BRONZE DELTA (THIRTY-FOUR ENTRIES)	BRONZE TANK (ONE ENTRY)	GOLD DELTA (THIRTY-FOUR ENTRIES)	GOLD TANK (THIRTY-FOUR ENTRIES)
1 Tom & Pat Allen	1 Tom & Pat Allen	1 Bob VanDerLinden	1 Bob VanDerLinden
2 Tom & Pat Allen		2 Bob VanDerLinden	2 Bob VanDerLinden
		3 Bob VanDerLinden	3 Bob VanDerLinden
		4 Bob VanDerLinden	4 Bob VanDerLinden
GREEN DELTA (THIRTY-FOUR ENTRIES)	GREEN TANK (THIRTY-FOUR ENTRIES)	M-B AOC DELTA (THIRTY-FOUR ENTRIES)	M-B AOC TANK (THIRTY-FOUR ENTRIES)
1 Jarney Magnifico	1 Jim Alderson	1 Jim Alderson	1 Jim Alderson
2 Jarney Magnifico	2 Jim Alderson	2 Yvonne Burgess	2 Yvonne Burgess
3 Stephen Kwartler	3 Jarney Magnifico	3 Stephen Kwartler	3 Stephen Kwartler
4 Jim Alderson	4 Jim Alderson	4 Stephen Kwartler	4 Jim Alderson
M-B BLUE DELTA (THIRTY-FOUR ENTRIES)	M-B BLUE TANK (THIRTY-FOUR ENTRIES)	M-B PASTEL DELTA (THIRTY-FOUR ENTRIES)	M-B PASTEL TANK (THIRTY-FOUR ENTRIES)
1 John Wolf		1 Dan Espinosa	1 Dan Espinosa
2 Jarney Magnifico		2 Dan Espinosa	2 Vincent Sneydy
		3 Vincent Sneydy	3 Dan Espinosa
		4 John Wolf	4 Dan Espinosa
M-B PURPLE DELTA (THIRTY-FOUR ENTRIES)	M-B PURPLE TANK (THIRTY-FOUR ENTRIES)	M-B RED DELTA (THIRTY-FOUR ENTRIES)	M-B RED TANK (THIRTY-FOUR ENTRIES)
1 Thomas Joffe	1 Thomas Joffe	1 Jim Alderson	1 Jim Alderson
2 Jim & Brenda Thale	2 Ed Richmond	2 Jim Alderson	2 Jim Alderson
3 Ed Richmond	3 Disqualified	3 Jim Alderson	3 Jim Alderson
4 Disqualified		4 Stephen Del Ray	4 Jim Alderson
M-B YELLOW DELTA (THIRTY-FOUR ENTRIES)	M-B YELLOW TANK (THIRTY-FOUR ENTRIES)	MULTI DELTA (THIRTY-FOUR ENTRIES)	MULTI TANK (THIRTY-FOUR ENTRIES)
1 Gary Mousset	1 Elva & Marie Bryant	1 Jarney Magnifico	1 Fred Fragasso
2 Elva & Marie Bryant	2 Elva & Marie Bryant	2 Dwight Parton	2 Fred Fragasso
3 Elva & Marie Bryant	3 Elva & Marie Bryant	3 Jarney Magnifico	3 Dwight Parton
4 Elva & Marie Bryant	4 Gary Mousset	4 Jarney Magnifico	4 Dwight Parton
PURPLE DELTA (THIRTY-FOUR ENTRIES)	PURPLE TANK (THIRTY-FOUR ENTRIES)	RED DELTA (THIRTY-FOUR ENTRIES)	RED TANK (THIRTY-FOUR ENTRIES)
1 Tom & Pat Allen	1 Jarney Magnifico	1 Jim Alderson	1 Jim Alderson
2 Bob VanDerLinden	2 Stephen Kwartler	2 Jim Alderson	2 Jim Alderson
3 Tom & Pat Allen	3 Gary Mousset	3 Jim Alderson	3 Gary Mousset
4 Jarney Magnifico	4 Gary Mousset	4 Frank Barta	4 Fred Fragasso
RED BICOLOR DELTA (THIRTY-FOUR ENTRIES)	RED BICOLOR TANK (THIRTY-FOUR ENTRIES)	SNAKE SOLID DELTA (FOUR ENTRIES)	SNAKE SOLID TANK (FOUR ENTRIES)
1 Dan Whitmer	1 Bruce Jung	1 Bob VanDerLinden	1 Bob VanDerLinden
2 Dave Polunas	2 Disqualified	2 Bob VanDerLinden	2 Bob VanDerLinden
3 Bruce Jung	3 Disqualified	3 Ted Lobello	3 Bob VanDerLinden
4 Bruce Jung	4 Disqualified	4 Disqualified	4 Michael Semelle
SNAKE VAR DELTA (THIRTY-FOUR ENTRIES)	SNAKE VAR TANK (THIRTY-FOUR ENTRIES)	SWORDTAIL DOUBLE (THIRTY-FOUR ENTRIES)	SWORDTAIL TANK (THIRTY-FOUR ENTRIES)
1 Jarney Magnifico	1 Jarney Magnifico	1 Bob Resch	1 Bob Resch
2 Michael Grewer	2 Jarney Magnifico	2 Bob Resch	2 Bob Resch
3 Steve Pruchak	3 Bil Klen	3 Bob Resch	3 Stephen Kwartler
4 Jarney Magnifico	4 Bil Klen	4 Bob Resch	4 Dan Whitmer
SWORDTAIL SINGLE (THIRTY-FOUR ENTRIES)	SWORDTAIL TANK (THIRTY-FOUR ENTRIES)	YELLOW DELTA (THIRTY-FOUR ENTRIES)	YELLOW TANK (THIRTY-FOUR ENTRIES)
1 Disqualified	1 Stephen Kwartler	1 Yvonne Burgess	1 Bob VanDerLinden
		2 Bob VanDerLinden	2 Bob VanDerLinden
		3 Disqualified	3 Bob VanDerLinden
		4 Disqualified	4 Bob VanDerLinden

AFTER THE SHOW

By Lou Westerman
Excerpt From "How to Raise Show Guppies"
Reprinted With Permission

When the guppies arrive home from the show I check them over carefully. They are then put into a separate aquarium and isolated from my other guppies. As a preventive medication against protozoan disease treat these aquariums with formaldehyde, adding two drops per gallon, and neomycin (250 mg.), one capsule for each five gallons of water.

I have lost more show guppies to protozoan disease than anything else. The disease appears as a red line at the edge of the tail, and in some cases the tail begins to close up. This disease is highly contagious and must be diligently treated if it is to be controlled. If neomycin does not seem to control it, add super sulfs (250 mg.) one capsule for each five gallons of water previously medicated with the neomycin. Repeat the treatment after syphoning every other day until four treatments have been made.

The antibiotics in the neomycin group, known as bacteriostatic antibiotics, meaning that they suppress the growth of, rather than kill out right, the pathogenic organisms they are intended to combat.

The bacteriostatic antibiotics, on the other hand, destroy the pathogenic organisms instead of just controlling their proliferation. In most cases, the faster the pathogenic organisms are growing, the faster a bacteriostatic antibiotic will work against them. Neomycin, one of the bacteriostatic antibiotics, is most effective when combined with formaldehyde at the rate of two drops per gallon of water. As with foods, new antibiotics and other forms of remedies for guppy ailments are being introduced to the aquarium market all the time, and it is best to check with your dealer and other experienced guppy hobbyists to find out what is best to use to combat particular diseases.

Split tails are another hazard of showing guppies. As a preventive, add one cc of 000 mag. water soluble B-12 into ten gallons of water. This procedure is repeated every other day during the show life of the guppies. If split tails occur I double and sometimes triple the doses, depending on the severity of the split.

After my show guppies are put into their aquarium and treated with preventive medication (formaldehyde, neomycin and B-12) they are fed a light feeding of dry food, followed one hour later with live brine shrimp. The following day they go back on my regular feeding program.

Guppies will not "out the mustard" at International Fancy Guppy Association sanctioned bowl shows? Bring several of your lovely little specimens to our monthly bowl show to receive some pointers on why your guppy is in the "also ran" category and not Best of Show caliber.

The results of the April 1994 bowl show:

- | | |
|-----------------|--------------------------|
| 1. Davdene Tait | Red Delta |
| 2. Elaine Poy | Blue/Green Bicolor Delta |
| 3. Craig Smith | Blue Delta |
| 4. Elaine Poy | Blue/Green Bicolor Delta |

No females (guppies) were entered in this month's bowl show (mine was at the South Jersey Guppy Group show. What was your excuse???)

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These plastic piranhas?
They keep people from putting their hands
in the fish tank?

WHY THE BEST GUPPIES ARE PRODUCED BY CROSSING LINES

By Mark F. Balci
Excerpt From IFGA Bulletin April 1988

Ask anyone how they produced their show guppies. Chances are they will say they crossed two separate lines of the same strain or class, e.g., Half-Black Red (Line A) X Half-Black Red (Line B). Ask them why and I will bet they invoke the mysterious "hybrid vigor" explanation.

In this article, I would like to propose an additional possibility which I have not seen mentioned before - incomplete dominance. Before you cry foul and say I, too, have invoked the arcane language of genetics, promise to keep it simple.

First, a review of "hybrid vigor." This is really a combination of two different theories in one term. The first theory simply says that the heterozygous (Aa) form is better than either of the homozygous (AA or aa) forms. The trouble is, in nature, rarely is Aa better than AA.

The second theory is based on the belief that recessives (a, b, c, etc.) are generally harmful. By crossing aaBbCc with AaBbCc, for example, we can produce AaBbCc which has fewer recessives than either parent and also displays the dominant forms (A, B, C, etc.) of all genes. Well, OK, but then eventually we would want to produce AaBbCc and there would be no need for crossing lines anymore.

Simply mate the AaBbCc with its sibling and some would be AaBbCc (which can sometimes be found out with test crosses), the desired final product no longer requiring crossed parental lines. Most culpa, mea culpa, have over-simplified the process. After all, guppies have twenty-three chromosomes, the same number as humans! It is more than likely that the "truth" involves aspects of both hybrid vigor theories.

Let me now propose an additional (notice, I did not say alternative) explanation involving incomplete dominance. By

definition, [incomplete dominance occurs whenever the heterozygous (Aa) condition can be distinguished from the homozygous (AA and aa)] In truth, we should be using two different capital letters rather than one upper case and one lower case which implies dominance of A over a, e.g. AB for homozygous and AA or BB for homozygous. It could be the case that what we seek in the perfect show guppy, occasionally must be heterozygote.

Such is the case in Blue Andalusian chickens. The pretty "blue" mottled form is produced by crossing a "pale" chicken with a "black" chicken. Now, while it is true that these heterozygotes will breed only fifty percent true (twenty-five percent AA, fifty percent AB, and twenty-five percent BB from an AB X AB mating), a better strategy is to keep the two homozygous lines and cross them (AA X BB) because one hundred percent of the off-spring will be the desired AB form. It is also a good idea since the AB form with incomplete dominance can run the gamut in phenotype (looks or outward

appearance) from AA to BB. Thus, the AA X BB matings will produce the greatest number of chances at a really excellent off-spring. Incomplete dominance also explains why the mating of two "ugly" fish can produce best-of-show winners.

have begun some basic observations with the Half-Black classification. There is some possibility from what I have seen that Half-Black fish are the result of incomplete dominance. Unfortunately the results may be confounded in the true black genotype is lethal or semi-lethal (off spring die in the womb or shortly thereafter).

(In conclusion, whether you believe that

- a) the heterozygous form is inherently more vigorous;
- b) more accumulated dominant alleles is better
- c) incomplete dominance is at work; or
- d) some complex combination of the above is true, crossing lines produces the best guppies.

Not only are guppies pretty, but they are intellectually stimulating as well.

Pity the poor breeder of black mollies!!

PAN PACIFIC GUPPY ASSOCIATION MEETING SCHEDULE

MAY 15, 1994 - 2:00PM

MIKE KHAJD'S HOME

18651 Parthenia Street, Sepulveda, California 91343
818 992-2456

DIRECTIONS: San Diego Freeway North (060) to Roscoe Boulevard. Turn left off freeway and ramp onto Roscoe Boulevard. Roscoe Boulevard to Hawthorn Avenue and turn right. Hawthorn Avenue to Parthenia Street and turn left. The home is located on right-hand side of street.

JUNE 12, 1994 - 2:00PM

WEST COVINA LANES: BANQUET ROOM

675 South Glendora Avenue - West Covina, California 91799
818 960-3836

DIRECTIONS: Santa Monica Freeway east (10) to San Bernardino Freeway East (15) to Vincent Avenue/Glendora Avenue exit. Turn right off freeway ramp onto Vincent Avenue. Vincent Avenue to Glendora Avenue and turn right into parking lot of West Covina Lanes.

JULY 10, 1994

WEST COVINA LANES: BANQUET ROOMS

675 South Glendora Avenue - West Covina, California 91799
818 960-3836

DIRECTIONS: Santa Monica Freeway east (10) to San Bernardino Freeway East (15) to Vincent Avenue/Glendora Avenue exit. Turn right off freeway ramp onto Vincent Avenue. Vincent Avenue to Glendora Avenue and turn right into parking lot of West Covina Lanes.

MONTHLY BOWL SHOW RESULTS

By Davdene Tait
Pan Pacific Guppy Association

Club members are readily encouraged to bring their guppies to our monthly meetings to afford themselves the opportunity to have their "little creations" critiqued by Jim Alderson, member of the International Fancy Guppy Association Judging Board. What better way to learn if you are on the right track to win a color class than to have your guppies analyzed on a monthly basis by an IFGA Judge?

Discouraged by what you see swimming around in your fishroom? Afraid your

SECOND CLASS MAIL

James M. H. H. H. H.
James M. H. H. H. H.
27 Wayne Place
Hillside, New Jersey 07035
(609) 426-1111

GUPPY ROUNDTABLE

YOUR GUIDE TO SUCCESSFUL GUPPY BREEDING

- Are you thinking of breeding fancy guppies, but do not know how to choose the right equipment?
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GUPPY ROUNDTABLE

THE OFFICIAL MONTHLY PUBLICATION OF THE
INTERNATIONAL FANCY GUPPY ASSOCIATION

VOLUME 1 ISSUE X

JUNE 1994

COFFEE ANYONE?

By Dr. Charles W. Carr
Alabama Guppy Club

I have only been raising Fancy Guppies since November of 1983 after a visit to Dwight Parton in Birmingham, Alabama (president of the Alabama Guppy Club) where I received my first two of Blue (Parrot) Guppies. At that time I only had two ten gallon tanks set up and of course that was more tank space than I would ever need (I thought) to take care of my prize fish from Birmingham. Here it is six months later and now have twenty-seven tanks and a room designated just for GUPPIES, with more fish than I care to count (Does this scenario sound familiar to anyone? Mmmm?)

It did not take me long to learn that you must take special precautions as disease can and will strike at any time. After two tanks of wonderful BLUE GUPPIES were completely wiped out in a matter of hours by a bacteria in the water, I decided to come up with ways to keep from spreading disease from tank to tank. It started with the feeding process.

Living in Rural Alabama there are no local pet shops, or Guppy Club members down the street, so I went to the phone and started calling the "GUPPY LIST" located in this publication. After several calls I came to the conclusion that whatever is in one tank should not be placed in another tank. Now those who have been around for a while would probably say something like "that's the first thing you should have learned" Well, now I know

through the feeding process? Make yourself a pot of coffee and keep the filters out on the counter.

O.K. O.K. so you do not need any dry humor from a novice, but just hear me out. One morning I was brewing myself a pot of coffee and I reached into the cabinet, as I usually do, to pull out one of those annoying coffee filters that always stick

(continued on page three)

HOW TO RAISE GUPPIES AND KEEP YOUR WIFE

By Alan Jansen

As any guppy man knows, raising guppies is a full time job. And as many men know it takes some doing to keep the little women of the house happy. If I was not too used getting the first tank into the house, and since the beauty of the guppy appeals to the feminine nature, it was agreed that as long as I did not spill water on this rug the project had her approval. By appealing to her maternal instinct I did and in all women, the second tank was installed to save the offspring from the cruel cannibalism of the female guppy (which immediately fell from favor).

The third and fourth tank are what the little woman calls the clean house. She considered after much deliberation that it was more important for the children to have a bath than for me to keep guppies in the tub. By this time, we came to the battle of the noise. All women seem turned in on a very high level. She can hear sounds I never knew existed.

As our bedroom was next to the living room we soon found ourselves being kept awake at night. She by the air bubbles, and myself by the noise of her voice. If I succeeded to get to sleep she would silently creep around in the dark and unplug the pump. Obviously something had to be done. In fact, after many discussions it was decided to invest in a pair of ear plugs.

By the time we became acclimated to our new pets, and their equipment, the size of my guppy family had grown so that I knew there was but one solution. We had to get a bigger house. This was accomplished by the "Keeping up with the Jones Method" which is the easiest of them all.

The next step is the brain washing. My wife will read anything. I decided to be a helpful husband and burned all the papers and magazines, except the Guppy Roundtable and Tropical Fish publications. After that it was a snap. As she keeps telling me whenever I win a trophy, behind every successful man stands a woman. His wife

INSIDE THIS ISSUE

- 4 **DIAGNOSTIC BATH PROCEDURES**
By Jay Standa, Curator, Toledo Zoo/Aquarium
Learn why it's important to diagnose diseases before treatment based on visible symptoms
- 6 **ALGAE CANNOT BE PREVENTED, OR CAN IT?**
By Melvin Gerslind
Be the envy of other hobbyists by growing beautiful aquatic plants in algae free tanks
- 9 **SELECTING BREEDERS**
By Erik Bryant
No one can breed great guppies by randomly throwing together males and females
- 10 **GUPPY POINTS TO POWDER**
By Arthur Linton
Every living thing, from the smallest ant to the largest whale, is a complex chemical factory
- 11 **HYDRA**
By Richard W. Fleming
The thimble-like, tube-like living animal is very definitely an enemy of the guppy
- 12 **AQUARIUM FISHING IN AQUARIUM FISH**
By I. Standa, O. M. D. M. D.
Learn why the number one cause of fish death in aquaria is ammonia poisoning
- 14 **THE NAME OF THE GAME IS FANCY GUPPIES**
By Norman Shumacher
Appreciate truly exotic fish, enjoy a challenging game? The name of the game is "Fancy Guppies"
- 15 **A FEEDING TEST**
By Dr. Eugene C. Lott
Find out what and how often frequent feedings produce award-winning guppies
- 16 **WHITEWORMS**
By Larry Arnold
Easy recipes for raising whiteworm culture for your voracious guppies. They love them!
- 17 **SHOW GUPPIES**
By Catherine Wolf
My first introduction to guppies was the common guppy. Then the magical world of show guppies
- 19 **VITAMINS**
By Laura Palmer
When an adequate amount of one vitamin is not present, specific pathological conditions can occur
- 21 **SOME OF THIS, SOME OF THAT**
By Paul Gerslind and Steve Richey
After a brief hiatus, the ever popular "question and answer" column returns.
- 22 **INTERNATIONAL FANCY GUPPY ASSOCIATION NEWS SECTION**
By Devdene Tait
Show results from Herland Guppy Club show. East Coast Guppy Association show information
- 29 **A HOMEMADE LIQUID FWY FOOD**
By Jane & Pylyper
Everyone always says it's hard to feed your fry live foods, well, what do you do when none is so hard?

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The Guppy Roundtable is published monthly through January 1991.
Pan Pacific Guppy Association
Business office located at:
11003 Culver Boulevard
Culver City, California 90230

Appointments to Meet at Second Class Postage
Rates is pending at Culver City, California.

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Subscriptions are \$30.00 per year for domestic members. Foreign subscribers must add \$4.00 per year. Please use international money orders only. Allow six to eight weeks for delivery of first issue.

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together. Then the thought went through my head, "There is a better way to strain brine shrimp, with no transfer of bacteria or disease from tank to tank - can use my coffee filters. Well that was a great idea, but in order to use a coffee filter, you must have a coffee pot. So I went to the local Reusable Mission Bargain Center and picked up a used coffee pot with the filter strainer attached for a couple of bucks. I took it home only to find the greatest way to strain baby brine shrimp.

The process is simple. Place the coffee pot strainer or the coffee pot, then insert a sterile white coffee filter on the top. I have found that by using a plastic kitchen coarser can siphon the amount of shrimp need for one feeding of baby guppies. Squeeze the water and shrimp out of the basket into the coffee filter. Next take the coffee filter after the water has drained out, leaving a little puddle of hatched brine shrimp in the coffee filter and invert the filter in a fresh, clean container of water where the shrimp can swim close to a light source. As the baby brine shrimp

gather close to the light source they can be collected with ease through a medicine dropper to feed each can of baby guppies. The used filter can then be thrown away without transferring any possible bacteria or disease to another tank.

No rubber bands around the bottle neck. No dip nets falling into the jar. No baby shrimp swimming around in the strained water because the cloth or the net was not fine enough mesh. Let's face it, the coffee filter is great. And I would suggest before you say it won't work give it a try and see just how great it really is.

Since I have started using the coffee filters as a way of straining my shrimp and feeding my fish, I have had isolated instances of a fish getting sick. At least now I have greatly reduced the chance of spreading bacteria and disease from tank to tank.

So go fix you and your guppies a pot of brine shrimp, and don't forget to ask them if they like cream and sugar.

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DIAGNOSTIC BATH PROCEDURES

By Jay Herold, Curator
Toledo Zoo/Aquarium
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Aquarists often do not have at their disposal sophisticated disease diagnostic tools. As a result, acute manifestations of diseases sometimes are treated based solely on gross visual symptoms. At other times, the fish may be chronically infested with parasites, but because they may initially show few if any symptoms, a treatment regime is not initiated as rapidly as it might be.

One tool to aid the aquarist in the prompt identification of metazoan and protozoan parasites is the "diagnostic dip" or "bath." The specimen to be examined is gently placed in a solution designed to cause the parasites to be dislodged from the host's skin or gills. This solution is then settled to concentrate any pathogens for microscopic observation. If parasites are discovered during the course of this procedure, an effective treatment can then begin based on the proper identification of the problem. Should the procedure not result in the observation

of parasites, the aquarist may then wish to focus his or her attention on other possible causes of the difficulty.

The following is a step by step outline of the diagnostic bath procedure used by the Toledo Zoo/Aquarium. It is based in part on a procedure developed by Roger Klocek, Curator of Fishes at the John G. Shedd Aquarium, Chicago. Dr. Mark Lloyd (Toledo Zoo/Aquarium) suggested the refinement shown in step three, of rinsing extraneous material from the fish prior to the procedure, as well as the use of a centrifuge outlined in step six. Other modifications to this technique were added by the Toledo Zoo/Aquarium staff.

1) The specimen must first be evaluated for the following characteristics:

a. Are there valid reasons for attempting this potentially stressful procedure? (Is the fish new to the facility, is it showing obvious disease symptoms, is it refusing food, etc.)

b. Can the specimen be removed from the tank for evaluation with a minimal amount of stress?

c. Does the species of fish have a known intolerance to formalin solutions? (Scaleless fish often do)

d. What is the minimum size container that will safely house the animal during the procedure?

2) Fill a container (one which is inert in water and has a flat smooth bottom as best) with an appropriate amount of aquarium water. To exclude particulate matter that may be in suspension in the tank, it may be helpful to pre-filter this water (a \$3 micron plankton sieve has been successfully used to perform this function). Add formalin (37% formaldehyde gas in an aqueous solution) at a rate of thirteen drops per gallon (158 ppm). Specimens being housed in water cooler than 20 degrees centigrade may require a slightly higher concentration of formalin (Roger Klocek). Place the container so that it is elevated off the floor. Use an air releaser so the solution will be properly aerated during the procedure.

3) Fill a second container (at least as large as the first one) with water from the aquarium. Capture the fish in a non-abrasive net, and rinse it in this second container for a few moments.

(continued on page five)

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GUPPY ROUNDTABLE

This will wash away most of the extraneous matter from the fish's skin that may have accumulated during the capture procedure. This material, debris and algae filaments, would otherwise make the finer examination of the dip water more difficult. Gently place the fish in the formalin/water solution, and cover the container to keep the fish secure and calm. Begin timing the procedure now.

4) Carefully observe the fish a five minute intervals for evidence of stress. Should any major indication of stress be noted (loss of equilibrium, improper breathing rate, etc.), the procedure may need to be terminated early. After one hour return the fish to the aquarium, remove the slircone from the dip solution, and incline the container at a twenty to thirty degree angle from horizontal.

5) After the bath solution has settled for thirty minutes, siphon a portion of the water from the bottom of the container (especially the lowest point) into a smaller glass container. Some surface water may also need to be collected if there is any indication of fish mucus floating at the surface. An adjunct means of concentrating the sample is to then pour the remaining sample through a plankton sieve, and gently wash the filtered material into the subsportion. Generally collecting a volume of five to ten percent of the original in this manner is sufficient. Repeat the process with the concentrated sample (inclining the container, settling for thirty minutes, siphoning off five to ten percent) until the volume of the sample is of an appropriate size for the planned microscopic examination (50 ml is suitable). Any parasites that have become dislodged from the skin and gills of the fish should now be concentrated in a small volume of water.

6) A centrifuge may be used to further concentrate the sample. Be sure to use this at a low speed so as not to distort the morphology of the parasites, which would make identification more difficult.

7) Properly dispose of all unused bath solution, and begin the microscopic examination promptly. Using the first concentrated solution, examine a portion of the sample under a low power dissecting microscope for evidence of metazoan

parasites. It is often advantageous to repeat this inspection with a different sub-sample to insure that nothing is missed.

Next, place a few drops of the sample under a compound microscope at 60 to 100 power and check for the presence of protozoans. If during the removal of these portions, the sample is agitated, time should be allotted to allow for resettling. Interpreting the results of a diagnostic bath requires some experience in that the parasites may have been changed morphologically by exposure to the formalin. Generally, the presence of any parasite metazoan indicates the need for a treatment regime to be developed. Incidental non-parasitic protozoans may be present, and do not necessarily demonstrate the need for a treatment.

Formalin is perhaps not the only irritant which can be used to dislodge parasites during a diagnostic bath. Osmotic differential baths (exposure to freshwater of a marine fish, and vice versa) will most probably be effective at loosening parasites, but there is also a greater possibility that the shape of the organism will be so disrupted by osmotic

pressure, that proper identification would be difficult. Solutions of copper sulfate appear to be too slow in their action and might cause the fish to secrete copious mucus, further hampering the identification of the disease organisms. Perhaps mixed solutions would be effective for some species. For example, using formalin at a lower than normal dosage, but, augmenting the effect by creating a slight osmotic differential as well.

Biopsies, or "skin scrapes" are often performed on live specimens as a similar diagnostic tool to the bath procedure. One can acquire a sample faster by performing a biopsy, but the stress to the animal may be greater due to the physical abrasion that occurs. A biopsy, promptly examined, has the benefit over the bath procedure of collecting live parasites. The motion of a living protozoan parasite makes microscopic identification much easier. One major advantage of the diagnostic dip is that a formalin bath is often times the prescribed treatment for the very pathogens which the bath is capable of identifying. This means that should a problem be discovered during the course of this procedure, the diagnostic bath itself will have had some therapeutic effect.



Submitted by Richard W. Fanning

Of course, we eat nothing but fresh baby brine shrimp in our home.

ALGAE CANNOT BE PREVENTED, OR CAN IT?

By Marcia Gonsky
The Kibitz Aquarium Society

Dh, to be the envy of other hobbyists by growing and propagating those beautiful aquatic plants with ease. Book after book tells you how to fulfill that dream.

Talking to other hobbyists and store personnel about the pros and cons of each species has helped tremendously

By this time, you figure you are ready to rush out and plant your "Aquarium Beautiful" tank. You purchase what you can afford and the plants look great for a short period of time. But, soon you notice that algae is starting to grow on your plants and/or glass. Now what? Wait and see

what happens or should something be done to stop it now? Maybe it will go away. I have been attempting to have a beautiful planted aquarium for more than five years now. The plastic plants just were not making it. I have not been a complete failure at growing plants, but I am much better at growing algae!

ALGAE CAN NOT BE PREVENTED

decided that if I truly wanted to get rid of this algae problem, I ~~must~~ understand the why's and how's and what to do about it.

Algae in my tanks has never gotten to the point where I can not see my fish, but at times, it has managed to partially cover

plant leaves, the glass and yes, even the gravel. YUK!!

I always felt that in small quantities it gave a more natural look to an aquarium. Trying to keep it under control, however, was another matter. Algae not only grows and multiplies fast, but if it gets out of hand, can be a real danger to fry and/or small fish. Both old and new tanks may experience a "bloom" of algae. If it is only temporary, you have nothing to worry about, but if it is a recurring problem it will affect the water quality and the overall health of your fish.

WHAT IS ALGAE?

Algae is a plant-like organism. The different forms found in tropical fish aquariums are, loose, filmy, matted, tiny single cell and branch-like algae. Algae has a cell wall, contains CHLOROPHYLL (a green pigment), and can manufacture its own food.

(continued on page seven)

ARE YOU TIRED OF BEING AN "ALSO RAN"?

Curious why your guppies are perennially judged as "also rans" at International Fancy Guppy Association sanctioned bowl shows? Feeling overwhelmed when mudding your way through the complexities of guppy genetics?? Are you totally bewildered over what to feed your guppies to achieve their optimal growth potential??? Confused whether you should harem breed, line breed or outcross your guppies???

Submit your questions for thought-provoking answers by Paul Gonsky, Judging Board Chairman and Stan Shubel, Former Judging Board Chairman and President of the International Fancy Guppy Association in the *Some of This, Some of That* monthly column of the Guppy Roundtable.

PLEASE FORWARD YOUR QUESTIONS IN CARE OF

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GUPPY ROUNDTABLE NEEDS YOU (YES, THAT MEANS YOU)

Have you succeeded in totaling the keys to mastering the complexities of guppy genetics or created pasta food recipes guaranteed to raise ENORMOUS guppies? Do not be shy about sharing the secrets of your success, your articles are of paramount importance if we are to maintain the reputable quality of our publications. The Guppy Roundtable is rapidly becoming the most effective forum for guppy breeders from around the world (yes, you read that right) to meet colleagues and swap their "hot tips".

Write an article for publication in the Guppy Roundtable, the official monthly publication of the International Fancy Guppy Association. The continued success of your newsletter depends on your written contributions.

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Chlorophyll allows algae and other plants to convert carbon dioxide and water (in the presence of light) into carbohydrates and oxygen in the process known as photosynthesis.

Even as in your aquascape plants, the different colors of green, blue-green, brown and red are derived from pigments.

Algae survives not only in tropical, but frigid waters as well. Algae in the coastal and marine systems vary according to light intensity, wave and tidal action. One form of marine algae is brown seaweed which has been found to have grown to almost two hundred feet in length.

GREEN ALGAE (CHLOROPHYTA)

Green algae is mainly found in fresh water and has several varieties that can invade a tank.

"Fur Algae" is the type that covers rocks and logs, etc. In small outdoor pools one can see this type of algae. It seems that no matter how often the glass is scraped, one cannot totally get rid of it. The green dot algae is my biggest problem.

"Green thread algae" is that stringy, ugly dark green algae that can envelope plants in no time, not to mention trapping small fish and/or small fry as well. It reproduces by microscopic sexual organs or "vegetatively".

Green algae does signify a good balance and is especially beneficial to your vegetarian fish as long as it does not get out of control. It can be introduced into a tank either by water or plants and can serve as a spawning medium. If left unattended too long, it can become firmly attached to plants, gravel, etc. and it is not always easy to detach.

BLUE-GREEN ALGAE (CYANOPHYTA)

"Blue-green algae" can be compared to bacteria and fungi because all are single-celled organisms that have no cell nucleus. These plant bodies lack roots, stems, leaves and embryo formation within a parent plant. This algae can be described as the type that forms a slimy

covering over anything it comes in contact with. It also can form an oily scum on the water surface.

Blue-green algae also has chlorophyll and produces gaseous oxygen. The color is derived from two pigments in the cell, CHLOROPHYLL (green) and PHYCOCYANIN (blue). It is found mainly growing on solid surfaces and can even be black in color.

It reproduces by division and spore formation. Because it reproduces in a relatively short time period, odors may result and it may also produce compounds which are toxic to fish. If left unattended, it can destroy all forms of life in a tank. This algae thrives in bright light and

undisturbed conditions. If this type of algae is a real problem, it may have developed because of poor water quality and bright lights.

BROWN ALGAE (DIATOMACEAE)

"Brown algae" prefers shaded conditions in a tank. It takes on a look of brown scum which can cover anything. Excess algae chokes your plants and they soon die.

RED ALGAE (RHODOPHYTA)

"Red Algae" can be introduced into aquariums by plants originating from Southeast Asia. It also forms from nitrate-rich waters. Because one cannot

(continued on page eight)

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successfully remove this algae the leaves of plants affected should be cut off and disposed of. The name "red" does not describe the true color. It is more of a brownish dark green shade.

GREEN WATER

Green water is caused by colony algae, a group of cells together or by single-celled algae that are not visible to the naked eye.

Scientifically this may include Volvox, Chlamydomonas, Chloralla and/or Scenedesmus. Green water can be caused by either too much light or not enough plants in the aquarium. Large water changes are needed to rectify the problem.

HOW TO GET RID OF ALGAE

There are a number of ways that hobbyists can choose to dispose of algae in their aquariums. I have found that sometimes they work and sometimes I just think they are working!

The following is a list of remedies I have been advised to try over the past five years. If you have an algae problem, perhaps there will be something here that you have not thought of or tried as yet.

1. The use of chemicals.
2. Temperature rise or fall.
3. Better maintenance.
4. Light too much or too little.
5. Change in substrate.
6. Increase or decrease the number of fish.
7. Increase/decrease the filtration and aeration of filtration apparatus.
8. Changing the location of the tank.
9. Cutting off affected leaves.
10. Scrubbing the glass.
11. Purchase algae eating fish such as mollies, Otocinclus, Hypostomus.
12. Add vegetation eating snails to your tank.
13. Water changes using rain or distilled water.
14. Cut down on the amount of food you are feeding your fish.
15. Adding more plants. Plants are a higher form of life and will choke out the conditions needed for algae to

survive.

16. Take a small baby brush or toothbrush and gently scrub off the plant leaves affected.
17. Scrub hard surfaces with stiff brush and hot, soapy water.

Because algae can be transmitted into a tank through air currents, brought in on plants and can grow in the conditions your tank provided, one can seemingly never completely destroy it. I have found that weekly maintenance (including the toothbrush) and water changes provided the best control.

Has anyone ever considered having an algae-growing contest? I am sure I have. Best of Show caliber algae growing in several of my tanks. And, if there are algae-growing competitions, why not Grand Overall Algae Grower awards (catchy, don't you think)?

REFERENCES

WATER PLANTS IN THE AQUARIUM by Inna Shchurmann

AQUARIUM PLANTS by Dr. K. Ratay and T. J. Horvath

THE MANUAL OF FISH HEALTH by Dr. C. Andrews, A. Esai and Dr. M. Carrington

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SELECTING BREEDERS

By Elm Bryant
Extracts from IFGA Bulletin August 1974

Before we go into details of breeding, let me straighten the misconception that people in general have about fancy guppies.

"Guppies, you just put five males and five females together in a tank and let nature take its course." Well, nothing can be farther from the truth. No one can breed good guppies this way; there is too much chance that some will be bad and, of course, nobody can predict a certain female's offspring in advance.

The most positive way to select breeders is to first determine what traits you want your guppies to possess. Is it size, color or both? One way may bring color but will lack size; another way will increase body size but lose color. Sound complicated? Sometimes it can be, but at least now you have taken that all important first step you want size and color together.

MALES

carefully watch the caudal region, what went first is a delta caudal. I watch all my males for a good sixty degrees spread. Next, want my male to be a good solid color in the caudal region. Next, but certainly not the least important trait, look for when evaluating my guppies, is body size. I select the largest body size with all the requirements. I desire in the two steps mentioned above.

You may have males with all the factors in most cases good guppy breeders will have a dozen males to select from, but try to cull these down to two.

FEMALES ARE DIFFICULT TO SELECT

Carefully watch the females for color in the caudal area. A clear region in the caudal is most desirable because blotches of mixed colors can be a lot of trouble. Next size of caudal. Pick a female with a nice high-empt caudal. Next the membrane (peduncle); this is the region before the caudal, pick your

female because of a thick membrane in this area. The thick membrane will help the offspring males to hold their large caudal.

SHAPE

Be especially careful for body shape in both your males and females. This can be dangerous if you pick a female with a crooked spine. Sometimes an overhead view is best to determine if a guppy has a bent or deformed spine. A strong light to view these areas is always extremely helpful. If you waste six months breeding only to find you used a female that had a crooked spine you may be a little mad.

SIZE

If you have cleared the three areas covered,

you now can look for the largest female with all the characteristics mentioned before.

Trees consisting of one male, two females are the best bet for control is the best answer for using a brood. When the females are beginning to fill up with eggs, separate them. You are better able to determine the quality of the young. Be sure to carefully label each tank of fry to tell months later from which female the young came. You may have a regret if all the young are mixed.

A young female may not have many young at first, but as she matures the amount of young will increase with each successive drop of fry. By young mean four to six months old. An older female does not necessarily mean better young. In fact it is often found to be opposite. Then after three groups of young, you will find it best not to take any more young from this female as she would be past her prime breeding age.



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GUPPY POINTS TO PONDER

By Arthur Latta
Greater Seattle Aquarium Society

One of our Bay Area aquarists had a very disconcerting experience a few months ago. He imported some albino Guppies from New York and crossed them with his own line of albinos in the hope that the outcross would increase the vigor of his fish. All the babies were gray-bodied. Not one albino in the lot! Naturally he was unhappy over this, but as it happens, there is a perfectly good explanation. It has to do with the mechanisms by which a fish inherits its body characteristics from the parents.

Every living thing (from the smallest ant to the largest whale) is a complex chemical factory with many hundreds of chemical processes going on at the same time, some in sequence with each other, some in balance with each other. Often the failure of just one of these processes will cause death.

A Guppy has to inherit from its parents the exact recipe for carrying out each process. These recipes are vitally necessary to the offspring's survival in these circumstances, the prudent thing is to have two copies of each recipe and this is just what happens. The Guppy

inherits one copy from its mother and one copy from its father.

The recipes from each parent are bound together for greater protection against loss just as chapters are bound together into a book. (Guppies inherit a twenty-three volume set from each parent, or forty-six volumes in all.) The "correct" terminology is not chapters and books but rather genes and chromosomes but I hope my colleagues will forgive my unorthodoxy.

For example, the production of dark skin pigment, called "melanin" from its raw material, called "dopa" involves six different chemical steps. Dopa is necessary for higher animal life, but so far as we are aware, the six substances produced in these six chemical stages in production of melanin from dopa "Process K" and "Process S" (just so as to call them something without tying ourselves down as to which steps they are!)

A Guppy which has all its recipes with the exception of one copy of process "K" will go right ahead and make melanin. Process "K" will operate at half efficiency because one of the 240 copies is missing but this will just make the Guppy a little paler, not enough to notice. But a Guppy which did not get any copy of process "K" from either parent will be completely unable to make

melanin. It will have no dark pigment in its skin or in its eyes and will be an albino.

The same goes for process "S". A Guppy which is missing both its copies of the process will also be an albino. Supposing, however, that someone comes along and crosses these two albino Guppies with each other. The one without process "K" will give all its babies one copy "S". The one without process "S" will give all its babies one copy of process "K". Therefore every baby will have one copy of process "K" and one copy of process "S". Process "K" and process "S" will each be working at half efficiency, for an overall efficiency of about a quarter. The fish will definitely be paler than ordinary Guppies but they still would not be albinos.

Thus, my friend's gray-bodied Guppies, if he had gone on and crossed his gray-bodied Guppies with their brothers and sisters (assuming recipes K and S are bound into different books, or chromosomes), 3/16 of their offspring would be missing both copies of process "K" and be albinos, 3/16 would be missing both copies of process "S" and be albinos, and 1/16 would be missing both copies of process "K" and both copies of process "S" and be super-albinos. The super-albinos, probably would not look any different from the regular albinos, unless they were purer, but they would be there and could be found by a series of test breedings with the pure grandparent stocks. So anyone who wants to breed super-sibing Guppies can now go right ahead and do it.

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HYDRA

SIMPLE-CELLED, THREADLIKE ENEMY OF THE GUPPY

By Robert W. Fleming
Westside Guppy Association

This threadlike, simple-celled, stinging animal, called hydra, is very definitely an enemy of the guppy. While there are many thousands of different hydra in the sea, there are only about a half dozen fresh water hydra, the most common types being the gray, the brown, and (smallest of the three) the green.

A good means of recognizing hydra, with the naked eye, is that it appears to be a piece of thread with a frayed end. Under a magnifying glass, you will note that most of the hydra have attached themselves to the aquarium, sand, and mostly, to the plants. This is done by means of a disc, or foot as it is called, which possesses a sticky substance. The free end of hydra is equipped with from five to ten tentacles

which are attached to a small knob, at the center of which is the mouth of the organism.

Hydra has a nervous system, but possesses no brain or any other means of thinking. If you study a hydra, undisturbed, you will notice that it contracts suddenly, from time to time, then expands slowly in a new direction. It will do this for a time, and if it finds no food, it will move to a new location and start anew. Hunger and temperature are hydra's main motivations for moving. If it is too cold, it will move to a warmer spot; but if it is too hot it just contracts and, staying in one spot, dies. As hydra has no special locomotive organ to move it, it may execute somersaultlike movements, or it may contract and, using its tentacles, crawl like a caterpillar.

Hydra feeds largely upon small water animals, such as insect larvae, water fleas,

protozoans, baby-brine shrimp, etc. Stinging cells on tentacles, and some on its body aid in the capturing of foods. The hairlike threads that are on the tentacles are poisonous, stings which both sting and poison, while the smaller hairs hang onto the prey.

Hydra propagates itself by budding and by fertilized eggs, these eggs having a hard outer shell which resists both drying and weeping. The animal in this shell comes to life once favorable conditions are established.

A great deal more could be written about hydra and its make up, as have only touched upon the high points. Now that you have an idea of what hydra is, let's see why it is an enemy of our guppies.

1. Hydra can kill small fry up to three-sixteenths of an inch, or retard their growth by eating their food.
2. Hydra will sting adult guppies, thereby making them nervous and afraid. Also, the guppies will shy from the

(continued on page eleven)

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bottom of the tank, where they normally rest at night, and will have the same problem with food as the fry.

3. A tank of hydra is not a pleasant sight to look at. In my research on hydra, these treatments were suggested:

- Hydra cannot stand chlorine, so remove fish and fill tank with fresh water from the tap. Return fish to tank after three days.
- Remove fish and raise water temperature to one hundred degrees Fahrenheit for twenty-four hours. When water returns to normal temperature, return fish to tank.
- Use ammonium nitrate at the dosage of five grains per gallon of

water. Dissolve the crystals into a small amount of water, then pour into tank, and in three to five days the hydra should be dead. This compound will not hurt fish and is beneficial to plants.

- Use ammonium sulfate as per the ammonium nitrate directions.
- Stock the tank with mollies or blue gouramis, as they are supposed to eat hydra.
- Hydra is sensitive to copper, so hang copper wire on each side of the narrow part of the tank. Repeat ~~the same~~.
- Avoid feeding daphnia or other fine food. Better yet, remove fish and hydra will starve.

Let's now analyze these aforementioned treatments.

Treatment One

If you have to remove fish from tank, you might as well use Treatment Two, because you will still have guppy conditioned water.

Treatment Two

Like this one the best, but it is only a half treatment, as I shall explain in later my conclusion.

Treatment Three and Four

These sound the wisest, but I dislike adding chemicals to my guppy water, unless it is absolutely necessary.

Treatment Five

In order for this to work, mollies and

(continued on page thirteen)

AMMONIA POISONING IN AQUARIUM FISH

By Elizabeth G. McNelly
Western Guppy Association

The number one cause of fish death in aquaria is ammonia poisoning. The toxicity of ammonia creates the majority of problems a hobbyist encounters with fish disease. Mysterious deaths, lesions, diseases and parasitic infections usually begin with excessive stress and damage resulting from ammonia concentrations fish are not equipped to withstand.

Aquarium ammonia results from the breakdown of organic material—things once alive. Dead fish and plants become ammonia. Fish excrete and respire it from their bodies. Uneaten food is the most common source of excessive ammonia, followed by poor maintenance and overcrowding. Decaying food may permeate the substrate and overcome the ability of filtration processes to convert it. Two kinds of ammonia will be present in fish tanks. One is more toxic. Alkaline water promotes the formation of the most toxic. Raising temperature also increases

deadlines many times. Acid water containing high ammonia may quickly reach fatal levels when pH is artificially raised. Hot summer days cause many fatalities in previously "stable" tanks. Clean cool water is the only remedy. Ammonia must be removed.

Water changes relieve fish distress by removal and dilution. Respiration may become normal. Fish hanging near the surface often have enough oxygen available but ammonia interferes with their ability to use it. Gills are stressed and even damaged. Vital repair work and resistance are lowered. Infections easily shrugged off under better conditions may become rampant. A water change usually restores the fish's own vital defenses. Nothing else will do.

Cause of excess ammonia must be discerned next. In most tanks this is overfeeding but often a buildup of accumulated debris in the substrate will suddenly produce disaster. Poisonous substrates take time to build up but WILL build up eventually in most tanks. Undergravel filters and tanks without

thriving rooted plants will go bad quickest. Synthetic coated gravels create problems because larger grains allow more debris to be collected than can realistically be converted. At some time SOME of this must be removed, believe any substrate should be discarded periodically as soon as it is noticed that fish tank water changes produce little or short term reductions in

Filler carbons and special ammonia removers will lower and convert ammonia to a point, although sometimes changing pH. Live, growing plants also are effective, but water changes are difficult to avoid for any period of time without catastrophe.

Most fish shops and many pet stores will gladly do ammonia tests as a free service. A clean container (plastic or glass) with about a cup of water is all that is needed. No fish, living, dying or dead should be included as it immediately ruins the sample.

Ammonia measurement is easy, not any more difficult than pH testing and far more important. Both expensive and inexpensive test kits and testis are available for home testing. Whether at home or your favorite shop, testing is definitely recommended. Only a few tests will teach an aquarist much more about the critical balance of his tank than a year or two of hit-or-miss experience.

gouramis must be starved before they would eat hydra. This would take too long.

Treatment Six

This is not feasible, as I have seen hydra propagate on a copper sponge.

Treatment Seven

This is also not feasible. As an experiment, did not feed baby brine shrimp for a month. When resumed feeding baby brine shrimp, hydra reappeared in the tank.

This is my conclusion and the treatment which I would use for the removal of hydra: Once hydra has been introduced into your tank by plants, sand, pond water daphnia, or anything which has been exposed to hydra, the more you feed, the more hydra you will have. As was pre-mentioned, hydra likes moving, minute, animals much more than food that does not move. Also, if you feed heavily on dry food or paste food, you are fouling the water which, in turn, cultivates more protozoans, which are moving animals and on which hydra will flourish and propagate.

To me, the simplest solution for ridding your tank of hydra is to take a clean tank leaving out sand and plants, and to take half the water from the infested tank and drain it into the clean tank. Then raise the temperature in the clean tank to one hundred degrees Fahrenheit for twenty-four hours. When the water returns to the temperature of your infested tank, transfer your fish into it.

Now for the most important discovery in my research. Of all the articles, books, hearsay and treatments, none mention the fertilized eggs with hard outer shell which lays dormant until conditions are ideal. Whether or not adding chemicals or heat destroys them remains to be seen. I am working on this now, and hope to bring you this information at a later date. For now, would throw away plants, sand or anything that has come into contact with hydra in the old tank. Ridding the old tank of sand helps to eliminate the hard-shelled eggs. If plants are valuable, use the



Submitted by: Lisa Fendley

To, what do they do to eat?



Submitted by: Tammy Lyle

For the last time, there are no monsters under the floor plate. Now go back to sleep.



Submitted by: Laura Palmer

By now, Watson, there is something decidedly fishy about this case.

THE NAME OF THE GAME IS FANCY GUPPIES

By Homer Baumgart

If you appreciate truly exotic fish, and enjoy the excitement of a game that challenges all of your skill, knowledge, cunning and luck, then the name of your game is fancy guppies. It is as much of a gamble as Las Vegas, and while not everyone wins, at least there are no real losers. But the game is not as simple as it might first appear, and you may be challenged by Mother Nature operates a tougher house than any of the casinos in Las Vegas.

may help to understand just a few of Mother Nature's house rules for the game. First, it takes a combination of two recessive genes to express themselves (Phenotype). Second, most of the desired characteristics that separate the beautiful fancy guppy from the common wild guppy are recessive. With this in mind, assume for the sake of simplicity that each of five characteristics that you desire (i.e. large body, delta tail, large flowing dorsal, clear rich blue caudal coloration, and uniform blue body coloration) is controlled by a single gene. Assume further that your selected breeding pair are both heterozygous (have one dominant and one recessive gene) as to each of the desired characteristics. What are your odds of getting all of the desired characteristics in a single male out of your first cross? Would you believe odds of 2,000 to 1? warned you it was a tough game. Now, assume that each of the desired characteristics are the result of a combination of at least two different recessive genes (most of the above characteristics are known to be controlled by multiple genes), what are your odds of getting all five characteristics in a single male? An astronomical 33,555,332 to 1! If you did not know before, now you know how really tough Mother Nature can be on the burgeoning guppy breeder.

Before you despair, let me hasten to tell you that the game can be played with

loaded dice. They will not allow you to win every time, but they will give you a good fighting chance. The name of the loaded dice is breeding stock that has been closely inbred for several generations. With close inbreeding on a selected base some of the desired characteristics will be homozygous (both dominant or both recessive), so you have really changed the characteristics of the game entirely. With some assurance that as to the homozygous characteristics that you will receive constant results, you may now focus your attention upon fixing the other desired characteristics in your strain.

Assuming the strain for which you select your breeders are inbred, you come to the problem of selecting the male. While you can see the characteristics that some of his genes will reflect, the selection of this fish will be basically a matter of compromise. For the reasons stated no one fish is likely to have all of the characteristics that you desire. Closely examine his brothers and find out as much as you can about his father and grandfather. If they have some of the missing characteristics you are ahead of the game.

Now comes the wild card in the deck. The female shows little indication of her genetic makeup. She should be a sister or close relative of your selected male, but beyond this there are no hard and fast rules, and will merely pass along some of the advice that I have received from expert guppy breeders. If you have mentally picked the longest and biggest female in the tank, well don't. The smart money is riding on the short stubby fat gal. I know that the largest female that I have ever owned threw off the smallest males and the stubbiest female I have owned threw off my largest and most elegant males. I have compared notes on this observation with several of the country's most successful breeders, and all concur in the selection of the short fat gal.

There are a number of theories being

popularly advanced that the shape of the caudal of the female gives some suggestions as to her genetic makeup, can neither confirm nor deny any of these theories, but will pass them along to the readers of Guppy Roundtable for what they are worth. A recent survey done on the West Coast would suggest that of the three basic tail types (round, box and shark) by far the largest number of delta males were produced by females with round tails, followed by box tails, and shark tails placed last.

On the other hand, the famous breeder and author Larry Korig uses only shark tails. Another well known breeder looks only to the height of the tail, and still another looks for the angle of flare in the tail. Most breeders concur that in the half-black strains that the shark tail is the preferred selection. It would appear that the results vary from strain to strain and that experience with a particular strain will give you the best indications. If you have no such experience, select a round tail with the greatest angle of flare and height for your breeders.

With the advent of the modern fancy guppy a number of color strains have females which show beautiful color in their caudal fins. In the red strains there is usually a substantial dark area with some indication of red, blue, green or yellow. For clear, bright red coloration in the male, yellow is the suggested choice in the female according to the "emverts". Probably the first color strain to show coloration in the tail of the female was the blue strain. Good blue coloring in the tail of the female is the desired choice. With greens most of the tails will be clear, and results will depend on individual strains.

One last word of advice (or caution). With inbred stock your first cross will likely produce no dramatic results (and no nasty surprises, either). However, you should end up with a number of high quality fish and hopefully some should be better than their father.

At any rate with careful selective breeding you have a splendid chance to really improve your guppy strain. AND THAT IS WHAT THIS GLORIOUS GAME IS ALL ABOUT.

A FEEDING TEST

By Dr. Eugene C. Larr
Extracted From Guppy Roundtable, March 1977

One of the big things that shows up time and time again is the ability to raise show type guppies, mean hereby really high-point fish. A very important factor in all this is feeding, I will explain what we set up and what we found out.

We took a strain of red delta-tail show guppies. All of the brothers from this particular line would certainly be very highpointed show fish. Several fish were super.

The fry were split up. One tank of test fry was fed the standard way, feed three times a day, the standard feeding regimen being something like this:

First Day

First Feeding - newly hatched brine shrimp
Second Feeding - Tetra Guppy Food
Third Feeding - beef heart

Second Day

First Feeding - newly hatched brine shrimp
Second Feeding - Tetra-min

Third Feeding - chopped earthworms
Continue to repeat first and second days alternately.

When feeding the flake food combination, it is crushed up very, very fine and passed through a fine sieve (like a tea strainer). The main point being to get the flakes small enough so the young fish can handle them easily and not have to wait until the flake itself has become soggy enough for their jaws to tear apart and to feed on. The beef heart was simply run through a blender, mixed with gelatin to hold it together and fed in that way. The chopped earthworms the same way, chopped in a blender and some gelatin added to it for firming. Sometimes the gelatin was omitted and the finely chopped earthworms simply fed as such, I could find no measurable difference between the mixing of gelatin with the earthworms and without it.

The most startling results from these fish whose parents were show fish was that we had an enormous predominance of veil tail types with caudal spreads less than sixty percent. Remember now

that the parents were high point, very fine deltas with tails beyond sixty degrees by a big measure.

The other half of these test fry were fed eight times a day. This was a constant thing and they were fed all the time. They were fed the following diet and in rotation as given:

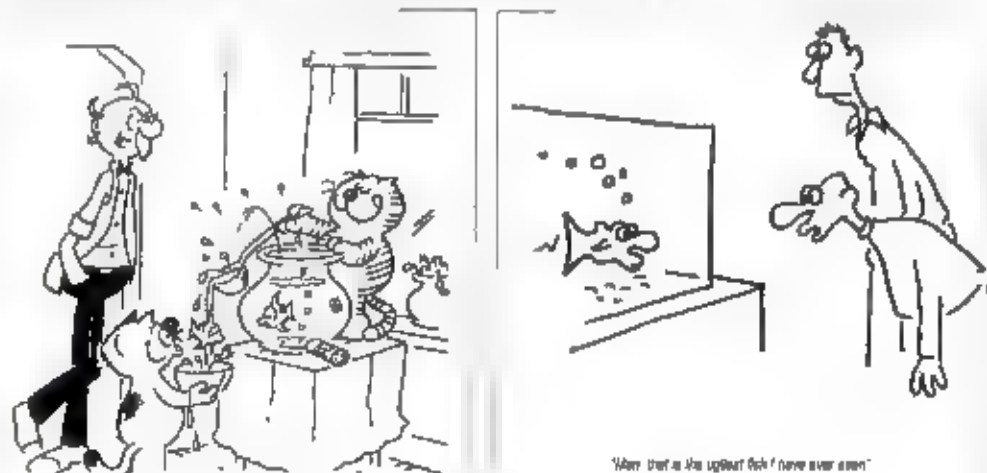
First Feeding - newly hatched brine shrimp
Second Feeding - Tetra Guppy Food
Third Feeding - beef heart
Fourth Feeding - newly hatched brine shrimp
Fifth Feeding - Spirulina Flake Food
Sixth Feeding - chopped earthworms
Seventh Feeding - Tetra-min
Eighth Feeding - newly hatched brine shrimp

Now this is against my concept of force feeding guppies, but, as you know, a guppy's digestive process is such that most foods pass through its digestive system in twenty-five to thirty minutes, so we simply divided up the twelve hour day and fed this kind of a diet every day.

The results were startling; from these baby fish we had our show quality fish. We had wide deltas, we had robust, large-like fish with essentially no veil tails among them at all.

It is an interesting thing to give some thought to, if you are going to raise large show

(continued on page 16)



"Telling out the fish crowder"

"Here, that is the ugliest fish I have ever seen"

quality fish to compete with today's standards, they are simply going to have to be fed a large variety of foods and, more importantly, they are going to have to be fed often.

We took just one more step. From the fry that were raised on the feedings of three times a day after these had reached maturity, we got a batch of young. These were then fed on the cycle of eight feedings a day (just as our second test tank had been fed).

The results were that they were all fine quality show fish. So even though the parents looked like yel' tails, they still

carried the genetics of the fine, big delta, and as soon as the feeding program was increased this genetic trait became obvious immediately.

So here is the kind of thing you might like to give some careful thought to, give it a try. Set aside some fish from a good strain and really pour the food to them, just keep them eating all the time. The downside to this is they will die young, in our eight-feedings-a-day tank, are indeed is a fish that is fourteen months old, which to me is very sad, but, nevertheless, for those great big show fish with huge tails, an early death is one of the penalties. Really, some of them can not swim worth a darn, but they

do have enormous wide tails. From the results of these feeding tests, you can see that feeding is of extreme importance if you are to raise show quality fancy guppies.

Genetics, of course, is the first requirement. If the genetic combination is not there for him to become a delta, no amount of feeding or pampering will make him become a delta. This was verified by feeding an established strain of yel' tails which had long, slender caudals with an angle of about forty-five to fifty degrees. On the eight-times-a-day sequence, they simply became larger fish. So it shows that feeding is not the only answer, the genetics there first.

keep the soil from drying out. It also keeps out mice and ants that might be in the area.

2. The worms can be picked off the glass but this is laborious. Since they congregate around the food, take a glob of worms and dirt from directly below the food and place it in a dish. The worms tend to ball up together as the soil dries out. Most of the dirt can then be brushed off. Raise them between two quart jars five-to-six times and you will have no trouble getting clean worms.

3. If you over feed, they may dig into your gravel and die in a day or two. A worm feeder usually prevents this.

4. It takes three to six weeks or more to get a culture started. If you take out the worms too early, you will never have any luck with them. It is also a good idea to have more than one culture so they may be alternated.

5. Wood boxes do not have as great a tendency to make the soil really waterlogged as do non-porous containers such as plastic, glass or metal, but they tend to dry out. Plastic containers with drainage holes punched in the bottom are very satisfactory.

Follow these handy tips and you will have a plethora of whiteworms to feed your voracious guppies.

WHITEWORMS

by Larry Arnold

FOOD

They will eat about anything organic: bread soaked in water or milk; cooked cereal; mashed potatoes; rice, sour milk; Populium. Any soft food will do. A slop of bread soaked in milk yields satisfactory results. They should not be fed too heavily at first since their food has a tendency to mold. Be sure to feed them regularly or they will migrate in search of greener pastures.

REPRODUCTION

The whiteworm is hermaphroditic. Each specimen contains male and female reproductive organs. Two worms exchange sperm cells during copulation. A mucus they secrete holds the worms together until fertilization is completed. The eggs are laid in transparent cocoons on their food. These gray, pinhead-sized ciliates that are often found in whiteworm cultures are not eggs. They are a harmless mite, which do no damage other than eating the whiteworms' food. Various mites infest cultures from time to time but all are harmless.

MISCELLANEOUS TIPS

A glass cover is recommended to

Soil depth should not exceed four to six inches. When the soil is too deep it gets pretty muddy on the bottom. A plastic refrigerator dish is plenty big enough to feed 2 ten gallon tanks once a week. A plastic half-gallon tea chest container will supply about twice as many. If large quantities are desired, a meat tray from a refrigerator is handy.

CULTURE MEDIUM

They seem to grow in any kind of dirt, provided it does not pack down hard. After they have been in the culture awhile, almost any kind of dirt tends to pack and become soggy. Peat moss is definitely recommended for keeping the soil loose.

Whiteworms should be kept cool if it is at all possible. Fifty to sixty degrees Fahrenheit seems to yield the best results. An unheated cellar works perfectly. They do not do badly during the winter in a cool room (68 Fahrenheit). Above 75 Fahrenheit they turn into a stinky, gelatinous mass.

SHOW GUPPIES

By Catherine Wolf
Guppy Ambassador of Greater Cleveland

When was first introduced to the raising of guppies, it was with the so-called common guppy. Someone had an excess of these little fish

pairs. I did not know anything about breeding them, but the guppies knew enough about that and soon it was time for more tanks. As I would go to the pet shops for supplies, I would always look to see what kind of guppies they had and to me they looked beautiful. Needless to say in time I had a collection of very colorful but small guppies of all descriptions.

Then came the change. We attended a guppy show. When I saw show guppies, it made all the others seem drab and misshapen. So we started out on a new venture—the breeding and raising of show

believe one of the most important steps in this direction was the joining of a very progressive guppy club. The main purpose of this club was to teach and help hobbyists in breeding better show fish. Through the aid of working committees, experiments are constantly made and reports are submitted to the members. These experiments might be on filters, brine shrimp hatcheries, foods, medications, water conditions, genetics, etc. An exchange of ideas and individual results is invaluable. Also, our library was increased by some excellent reference books.

A very necessary "must" is to learn proper breeding. Using good stock from a good strong strain is essential. After the line is established, then comes the inbreeding, line-breeding or cross-breeding, depending on what your ultimate goal is. In breeding show guppies there is always the search for better color, bigger dorsal, larger body or wider tail and these are things which must be bred into the strain without losing the good features it already has. This takes time, patience and hard work. In breeding show guppies there is, as in breeding any thorough-bred stock, there has to be a

beautiful and perfect guppy and all these things help us toward that goal.

Do not hesitate to follow any chance bit of information that may possibly help. On reading over a year old program, I noticed the listing of a curator in the Department of Ichthyology who had published a scientific paper on "The use of pituitary hormone in the fish culture." Immediately, I wrote and asked where the article might be obtained. Another instance was an article which appeared in a newspaper, written by a professor who was making experiments with iron to promote growth of fishes.

Through correspondence I learned the methods he was using and his results up to the present time. So there is a wealth of information available if you go after it. There have even been concise articles written on

(continued on page eighteen)

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the application and results of hormones. So it is actually up to each hobbyist to sort out and make the best use of any and all information. The end results are what count.

Another very helpful phase to learn is judging fish. In judging fish you soon become adept at picking out the flaws that a casual observer would not even notice, such as a split tail, short or narrow dorsals, inadequate coloring, slight hump, bad deportment, mismatched caudal and dorsal color, etc. Many clubs have found it beneficial to have periodic bench shows at their meetings and let the members judge the fish, then compare the score with an experienced judge. My first experience in judging at a show was rather terrifying, but like most things, with each successive show it became easier and more enjoyable.

To me, one of the exciting facets of this hobby is attending as many shows as possible. Aside from seeing beautiful show guppies, it is an excellent opportunity to meet people interested in the same hobby and I have yet to attend a show

where I did not acquire some bit of new and helpful information. As you often meet the same exhibitors attending these different shows it does not take long to form new friendships, and many believe that attending these shows even if you have no fish to exhibit is in itself a very good education. It gives you a wonderful opportunity to study top quality fish and see what you must strive to attain in your personal guppy breeding regimen.

When entering fish in a show, it must be remembered that everyone can not be a winner and since this is purely a hobby, the losers should be gracious losers and merely resolve to try harder. When being presented with your first trophy you seem to forget the many hours, days, months and sometimes years of hard work, and sometimes discouragement, it took to win it. You get a feeling of accomplishment when you enter a fish you have bred and raised into a prize-winning show guppy.

Then you start the cycle all over again, forever on the search for the bigger and more beautiful fancy guppy.



"Where there is a fly in my soup?"

GUPPY GAMBITs

By Ron Conrad
Central New York Aquarium Society

Can you use a power filter when raising guppy fry or for that matter any fry? I do not remember reading any literature on this subject.

We tend to use power filters of the variety that have sponges tubes that would mangle young fry rather severely if they were caught up in them. You can put a cheese cloth type of material around the intake tube. We have done this, and it worked. You just had to change the cloth a lot.

However, the best solution is probably the big sponge filter. They (the filters) have more area to provide biological filtration and they do not suck up and mangle fry. They can be rinsed fairly

easily and they are relatively inexpensive (always a consideration if you have many tanks as I have allocated for my guppy breeding regimen).

I have tried power filters (Penguins and Whirlpools), however, for young fish too big to be taken in through the intake tube and I still ran into problems. The problem here, I am beginning to believe, is that the current is so strong, the fish uses up all its energy just swimming and as a result, has no energy left to grow or worse, has not enough left to even survive. I put some guppy fry into a twenty gallon tank with a power filter on high. They had just come from a ten gallon with a sponge filter and I lost two of them before I figured there was a problem and turned the filter down.

After I turned it down, I did not lose any more fish, but they did not grow very

rapidly. The current still might have been too strong. We have had the same problem in a thirty gallon tank with guppy fry. The current from the filter being on high may still be a problem. The fish were not growing.

I suspect I may have brutally done it: some mature guppies with too much power filtration. Guppies do not always swim that strongly, especially mature male deltas. Two or three died in the tank before we removed the filter. Other fish lived successfully in the tank, but it did not work with fancy guppies. The only factor that could isolate it was the filter. It was fairly powerful for the size tank they were in.

When I think about it, I realize I probably used the larger filter to keep from having to change water so often. However, it did not work. I am back to changing more water and keeping the power filters on low for young fry and fish that do not swim strongly (the mature male deltas that have "tailed out").

VITAMINS

By Laura Palmer
Westlake Guppy Association

When an adequate amount of any one vitamin is not present, a specific pathological condition or deficiency disease occurs. In order to give fish the proper vitamins, you must know the source of these "vitamins".

For example, Vitamin A occurs only in animal products such as butter, eggs, and fish liver oils, but plants contain a yellowish substance called carotene or vitamin A₁, which is easily changed into vitamin A in animal cells. Vitamin A itself is fat-soluble and can be stored in the fish's body. This vitamin is necessary for the maintenance of the epithelial cells of the scales, eyes, digestive and respiratory tracts (gill, pharynx, nostrils). In vitamin A deficiency, these cells become flat, brittle and less resistant to infection than normal. This vitamin is called an "anti-infection vitamin". In advanced cases of the deficiency, the eye epithelium forms a horny, point-like covering over the cornea, resulting in a characteristic type of xerophthalmia (blindness). Also, vitamin A is necessary for the maintenance of normal nerve tissue for reproduction, and for the growth of bones in the development of larger strains.

The original vitamin B was characterized as being the extracts of liver, yeast, or rice hulls which yield extracts of vitamin B COMPLEX. The substance has nine other minerals with specific biologic effects, which have been separated. Some of these substances were once given separate alphabetical designations: riboflavin was called vitamin C, and biotin was called vitamin H, but they are all now grouped together as members of the B Complex, not because they are similar chemically or in their effects, but because they tend to occur together and when separated, a loss of vitamin quality occurs.

THIAMINE (Vitamin B-1)

The substance is white, crystalline material

with a yeastlike odor, found in small quantities in a wide variety of foods. Yeast, liver, nuts, pork and whole grain cereals are the best sources of all the vitamin B-1 and Vitamin B Complex. This vitamin is stored in the body to a great extent, and evidence of a deficiency appear within a few weeks. The function of thiamine in the body of the fish is to form the active part or "coenzyme" of certain enzymes involved in the metabolism of carbohydrates, particularly of pyruvic acid. When a thiamine deficiency interferes with carbohydrate metabolism, a number of characteristic symptoms appear. In mild deficiencies there is fatigue, loss of appetite, weakness, and muscular action stopping in the caudal fin. In more marked deficiencies there is an up and down movement of the fish and a spinal cord bending about the area of the dorsal fin. The symptoms disappear very slowly when given thiamine. This is given through higher doses when feeding.

RIBOFLAVIN (Vitamin B-2)

Riboflavin is a yellow pigment found in both plants and animal tissues. It occurs most abundantly in foods rich in thiamine, yeast, liver, wheat germ, meat (beef heart), eggs and cheese. Riboflavin forms part of coenzymes necessary for the functioning of enzymes involved in the metabolism of glucose, amino acids and certain cellular oxidation processes. A deficiency of riboflavin is marked by the appearance of open cracks on the fishes body. These wounds then later become infected and cause death. This also stunts growth. In experimental riboflavin deficiencies in fish, there is a failure of growth, loss of some scales, inflammation of the eyes (pop eyes), finally death.

PYRIDOXIDE (Vitamin B-6)

It has been known for some time that pyridoxide is necessary in the diet of fish. The vitamin occurs in a wide variety of foods, meat, eggs, nuts, whole grain cereals and beans, so that in a clear cut deficiency of pyridoxide in fish, a slow reaction will

occur. A derivative of pyridoxal phosphate is the coenzyme for a number of enzyme reactions in the metabolism of amino acids. A diet deficient in pyridoxide fails the growth, and the fish becomes anemic and has atrophied lymph tissues that lower the resistance to infection. So in order to prevent this, more protein in the diet and more pyridoxide is needed to stimulate growth for larger fish.

FOLIC ACID (Vitamin B-12)

Choline, Inositol and Paraminobenzoyl Acid, Folic Acid and Vitamin-12 are necessary to prevent anemia and are used in conjunction with liver extract in developing larger fish by higher metabolism. They are active as coenzymes in the metabolism of certain substances involved in the synthesis of amino acids and nucleic acids in reproduction and formation of red blood cells.

Choline is a growth factor, the absence of which causes hemorrhages in the kidneys and a bone deformity. It is important in the metabolism of fats and proteins, as a coenzyme like many other B Complex vitamins are, but as a source of methyl groups to be used in building up certain essential substances.

Inositol and para-amino benzoic acid have been reported as important in preventing tail splitting, and in pelvic fin, dorsal fin, caudal fin, to prevent color loss and short growth. These B-vitamins are also synthesized by the intestinal bacteria.

VITAMIN C

The lack of this vitamin can be seen by bruised scales, and general weakness of the fish in swimming. It can be found in combination of vegetables in the diet in a form of paste food made up of fresh vegetables. It plays some part in cellular oxidation, particularly the oxidation of one of the amino acids, tyrosine. It is necessary for the maintenance of normal connective tissue. In its absence the capillaries become exceedingly fragile and easily ruptured, resulting in hemorrhages under the skin. The development of the spinal cord is abnormal and so the fish is stunted.

(continued on page twenty)

VITAMIN D

This vitamin is fat-soluble, and is also called calciferol. It is unique in that it can be made in the body of the fish under the influence of sunlight or artificial light. Calciferol is also found in liver oils, butter, eggs, and milks and any excess manufactured in the skin during the sunlight or artificial light on the fish is stored in the liver. This substance is necessary for the normal absorption of calcium and phosphorus from the intestine. When there is a deficiency of calciferol, calcium and phosphorus are not absorbed in normal amounts. It retards formation of fin cells, growth of the fins, as well as the fishes body. A soft spinal cord and bone structure causes a deformed body shape. There is a danger in overdosing a fish with vitamin D, because it may lead to calcification of the soft tissues, bones, and finally death.

VITAMIN E (Alpha-tocopherol)

This vitamin is reputed to be necessary to prevent sterility. Vitamin E absent from the diet, male fish become sterile, owing to degenerative changes in the testes like organs, females are unable to complete pregnancy successfully (the reason females die before they have the young or in the stages of development of the young), and the embryo dies. Vitamin E can be found in vegetables and animal oils. Also, a lack of vitamin E in fish can cause a wasting away of reproduction in new offspring.

VITAMIN K

Normal coagulation of blood which depends upon the manufacture of prothrombin by the liver, is connected with the specific action of a number of different chemicals scientifically referred to as vitamin K. These chemicals with the same effect occur in a variety of foods and are manufactured by the bacteria in the fishes intestine. Vitamin K can be absorbed only in the presence of bile salts (Vitamins A, D, and E also require bile salts to be absorbed). The lack of this vitamin retards digestion, which can result in poor fish.

NIACIN

Niacin is a component of two different coenzymes which are the active parts of many different enzymes in cellular metabolism. Niacin was known as an organic compound for over fifty years before its function as a vitamin was recognized. It is found in yeast, fresh vegetables, meats and hops. Corn meal has an unusually low niacin content and whenever this food forms a large part of the fishes diet in dry foods, the deficiency disease, pellagra, characterized by dermatitis (reddened inflammation of the outer part of the fishes body, especially in those cases exposed to long periods of light) will occur. Also diarrhea and dementia will occur. The normal functions of niacin are the maintenance of the epithelial cells, digestive tract and of normal nerve functioning processes which depend on its action as the coenzyme of one or another of many different enzymes. In the use of any sulfa drugs for treatments of fish for some kind of external infection, the fish absorbs it as it absorbs water. When the sulfa reaches the intestine it kills the intestinal bacteria and causes deficiencies of a number of vitamins, including niacin. Some part of the niacin used by the fish is synthesized by the intestinal bacteria.

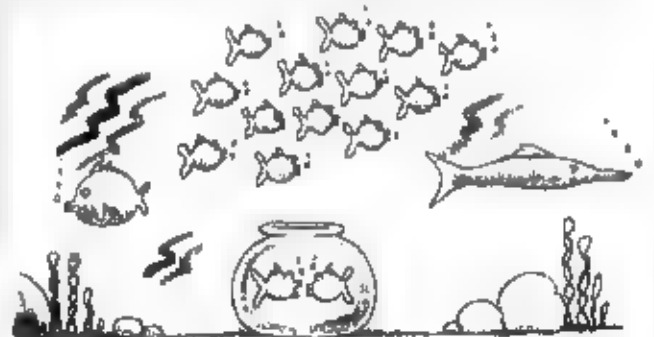
PANTHOETHNIC ACID

This vitamin is necessary for the maintenance of normal reproduction and external cells. A deficiency of it will cause failure of growth, dermatitis and damage to the adrenal gland. Especially rich sources of pantothenic acid are in eggs, meats, sweet potatoes and peanuts. It forms part of another coenzyme, "coenzyme A," important in a number of steps in the metabolism of carbohydrates, fats and proteins, and in the transfer of energy.

BIOTIN

This vitamin is necessary in the diet of a fish because it keeps the color of the fish and prevents a loss of color in its offspring. A rich source of biotin is molasses, egg yolk and liver. Egg white contains a protein called avidin which combines with biotin in the intestine and prevents its absorption. Avidin is destroyed by heat so that cooked egg white does not interfere with the absorption of biotin. Biotin is believed to form a coenzyme involved in carbon dioxide fixation.

These vitamins are all vitally important for proper growth, functions, and reproduction of fresh water fish, including the fancy guppy. Be sure to ensure your fish receive appropriate amounts in their daily diets.



It's not like this school - we're always yelling attention

SOME OF THIS, SOME OF THAT

By Stan Shubel, Former Judging Guild, American International Fancy Guppy Association

Question: At what age do you begin culling your fancy guppies? And, more importantly, what judging criteria do you use for selection during your initial culling or selection process?

Nick Vissar

STAN SHUBEL: I do almost no culling whatsoever until the fish are three to four months of age. Working with established lines of guppies is a definite advantage as they usually breed ninety percent or better true. From this stock you then would pick the top fish to carry on the line. The only culling would be fish that have pronounced deformity or a poorly shaped caudal or pelvic.

Question: Describe the breeding program you use to maintain your solid color lines of fancy guppies. That is, do you normally use brother-sister crosses, line-bred or outcross?

- Lee Flanders

STAN SHUBEL: My normal breeding set up consists of two males and four or five of their sisters. The resulting young are kept in separate tanks in order to determine which females produce the best young fish. From the best fish of the F1 generation, breeders are again selected. Their young would be F2 and so forth. After four or five generations, would then cross to one of my related color lines with which I had followed the same procedure. Using this method, it is possible to maintain a color for a number of years with no problem.

Question: How many guppy young do you raise per tank (per gallon of water)?

Nick Vissar

STAN SHUBEL: Up to one month of

age - try and keep the young fish in a five gallon tank. After this point, transfer them to a ten or fifteen gallon tank whichever is available. The smaller tank makes it much easier for feeding the fish live baby brine shrimp, and for that matter, dry food by concentrating both fish and food in a given area. It is necessary to make frequent water changes when using the smaller tanks and also the amount changed, up to seventy-five percent. As the fish get older, cut down to one to two males per gallon and three females per gallon of water.

Question: Do you normally setup breeding tries of fancy guppies (one male, two females), or do you use group (harem) breeding?

- Nick Vissar

STAN SHUBEL: My normal guppy breeding set up is two males and four to five females. Use group or harem breeding only if you want to lose your line as usually the smallest males are the ones that will breed the females in most of my established lines of guppies. I could probably get away with this method of group or harem breeding, but there is really no reason for me to take this chance.

Question: How important do you feel outcrosses are in creating and developing a show quality line of fancy guppies?

- Richard W. Fleming

STAN SHUBEL: Sometimes it is necessary to outcross to try and improve your line of guppies, especially if you are only running one line of a specific color. In my fishroom, keep at a minimum two separate lines of each color of guppy, and with some colors I may have four separate lines. Occasionally you may reach a point where you see no improvement, say in length of dorsal, body size, or you need to improve the color in this case outcrossing may be the answer.

Question: What advice would you give a new breeder regarding purchasing fish to start his/her lines of fancy guppies?

Elizabeth G. McGinnity

STAN SHUBEL: Buy the best breeding stock you can afford and preferably two lines of the same strain. Ask the breeder if his/her fish are inbred or hybrid. Buy inbred or line bred fish. Hybrid fish are usually nice to look at, but as a rule not good breeders.

Question: What colors of fancy guppies do you think are the best on the bench at International Fancy Guppy Association sanctioned bowl shows today?

- John Clay

STAN SHUBEL: This will vary from show to show, and to a degree depends on the lighting at the show. Reds are one of the most consistent winners, followed by Half-Black, Half-Black AOC, Blue, Green, Purple and other Half-Black colors.

Question: When you first became interested in breeding fancy guppies, where did you get your initial breeding stock?

- Carolipe Miller

STAN SHUBEL: I purchased my first guppy breeding stock from a couple of pet stores in the Detroit area. They would be considered semi-fancy guppies by today's standards.

Question: How many virgin females do you keep per batch of young?

Richard Brown

STAN SHUBEL: I differ from most established breeders in that I keep most of the females from a drop, and then pick out the best from my breeders.

Question: What color or colors of fancy guppies would you recommend for a beginning guppy breeder?

- Mark Britman

STAN SHUBEL: That is an individual choice. Pick the color or colors of fish that most appeals to you. If you like the guppies you are working with you will do a better job raising them.

MESSAGE FROM THE EDITOR

am aware that in certain segments of the country the delivery of the Guppy Roundtable remains problematic. Please be assured the Publication Staff of the Guppy Roundtable is committed to embarking upon whatever course of action is necessary to ensure each of our subscribers receive their issues on time, and, of equal importance, in pristine condition.

am pleased to inform you that an appreciable improvement in the delivery of the Guppy Roundtable was achieved with the May 1984 issue (evidenced by the messages I have received from readers across the country who advise me on a monthly basis of the date on which they receive their issue). The Supervisor of the Second Class Mail Department, at the General Mail Facility from which the Guppy Roundtable is mailed, is continuing to utilize her best efforts to ensure timely delivery of our newsletter to all our subscribers. She

emphasizes the importance of subscribers notifying me via letter, note or post card (no telephone calls, can not very well tell my answer machine containing your complaints down to the post office) if you receive your issue(s) more than seven days from the date which it was mailed (distribution date is the twentieth day of each month), receive your issue(s) in poor condition, or do not receive your issue(s). Be precise in describing the trouble(s) you are experiencing so appropriate measures may be undertaken to correct the problem (please be sure to include your name address and nine digit zip code).

She will contact the Postmaster at the post office from which mail is distributed for the subscribers experiencing problems, and advise them the Guppy Roundtable is coming through their mail facility on a monthly basis and it should be delivered, handled and treated as Second Class Mail (I do not think we can ask for better cooperation or service than that).

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HISTORY OF THE MODERN GUPPY
(1950 - 1975)

By Art Hopkins
Extracts From "How to Raise Show Guppies"
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In the early 1950's the wide-tail guppy (known as the 'delta' today) was being developed and exhibited mainly in the eastern part of the country. In 1957 Tropical Fish Hobbyist magazine and other aquatic publications published a fabulous offer to all aquarium societies in the United States. The offer made by Larry König and Dr. John Rutkowski, was to give a pair of their strain of show guppies to any aquarium society that would form a guppy committee or group within their society. For the first time excellent breeding stock was distributed throughout the United States.

In 1961 a very progressive organization of aquarium societies known as the Northeast Council of Aquarium Societies developed the American Guppy Association standards. From there they developed the A.G.A. point system. In a very short time this was the most widely accepted standard and point system for judging guppies in the United States.

In the early 1960's the exhibiting of fancy guppies centered in the Midwest, mainly

in Wisconsin, Illinois, Indiana and Ohio. In 1964 a group of hobbyists from these states met in Cincinnati, Ohio to discuss and form an organization to better serve the needs of the midwest area guppy breeders. The purpose of this meeting was to further the ideas of the American Guppy Association and standardize such things as exhibition bowls, training and qualifying judges, establishing a show schedule, and updating standards.

Ed Hagle of Guysburg Falls, Ohio served as our first chairman until 1966 when the International Fancy Guppy Association was formed. Dick Eisenmeyer served as President for two years. Stan Shubel became President in December 1968, and served until December 1972. Art Hopkins of Cincinnati, Ohio became President in December 1972, and served until replaced by John Wolcott in 1975. In the years since its formation the International Fancy Guppy Association has established a judging standard and has done much to regularize all of the rules of organized guppy-showing while helping guppies to reach new heights of popularity. The International Fancy Guppy Association currently has eight to twelve shows a year, an annual meeting, two judging seminars and a monthly publication.

THE GUPPY

Consider the guppy as a household pet. You have nothing to do but keep him wet. His bearing is mild, his manners are neat. His face is clean, his breath is sweet. He does not bark, he does not sing. He does not shed feathers or fur or hair. All over the sofa and carpets and chairs, You never find him underfoot. You put him someplace and he stays put. He asks but little here below, Just food to eat and room to grow. If either of these is long denied When you look for him he has quietly died.

Anonymous

ACCUMULATIVE POINT TOTALS

THE ACCUMULATIVE POINT TOTALS FOR THE CURRENT SHOW SEASON, INCLUDING THE RESULTS FROM THE SOUTH JERSEY GUPPY GROUP SHOW, WERE SCHEDULED TO APPEAR IN THIS ISSUE OF THE GUPPY ROUNDTABLE. UNFORTUNATELY, THIS INFORMATION WAS NOT RECEIVED BY THE EDITOR PRIOR TO RELEASING THE NEWSLETTER TO THE PRINTER FOR COPYING ON MAY 14, 1984. IN THE EVENT THESE TOTALS ARE RECEIVED BY THE EDITOR PRIOR TO JUNE 1, 1984, THEY WILL APPEAR IN THE JULY 1984 ISSUE OF THE GUPPY ROUNDTABLE SCHEDULED FOR DISTRIBUTION VIA SECOND CLASS MAIL TO OUR READERSHIP ON JUNE 20, 1984.

THE PUBLICATION STAFF APOLOGIZES FOR ANY INCONVENIENCE THIS OMISSION MAY CAUSE OUR SUBSCRIBERS.



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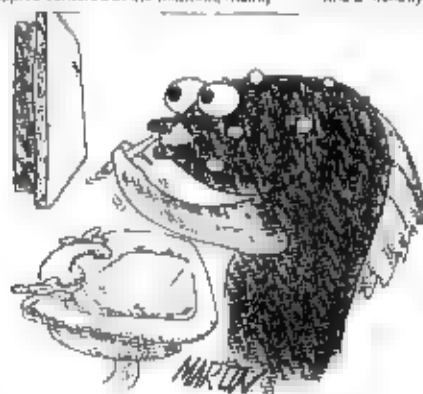
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"Wouldn't you know it! A big International Fancy Guppy Association bowl show tonight! and... come down with a nasty case of ych!"

OFFICIAL INTERNATIONAL FANCY GUPPY ASSOCIATION SHOW RESULTS

MEATLAND GUPPY CLUB - APRIL 26 - MAY 1, 1994 FOUR HUNDRED TWENTY-EIGHT ENTRIES

BEST OF SHOW TANK (THIRTY-THREE ENTRIES)			
FIRST PLACE STAN CHUBEL Red	SECOND PLACE JIM ALDERSON Half-Black AGC	THIRD PLACE TYRONE BURGESS AGC	FOURTH PLACE MICHAEL BUSCH Black
BEST OF SHOW MALE DELTA (THIRTY-THREE ENTRIES)			
FIRST PLACE JIM MAIER Half-Black/Pastel	SECOND PLACE JIM ALDERSON Half-Black Red	THIRD PLACE M & K SLATER Nance	FOURTH PLACE GARY MOUTSEAU Red
BEST OF SHOW MALE HYBRID/VEIL TAIL (THIRTY-THREE ENTRIES)			
FIRST PLACE GARY MOUTSEAU Solid	SECOND PLACE SCB REBECH Nance	THIRD PLACE TOM & PA ALLEN Body/Eye Color	FOURTH PLACE BILL KLEIN Bridalveil
BEST OF SHOW FEMALE (THIRTY-THREE ENTRIES)			
FIRST PLACE TOM STEGALL Shaggy	SECOND PLACE TOM STEGALL AGC	THIRD PLACE TOM PETERS Black	FOURTH PLACE FRANK BARTA Half-Black Red
BREEDER MALE (TWO ENTRIES)			
FIRST PLACE JIM ALDERSON	Disqualified		
BREEDER FEMALE (FOUR ENTRIES)			
FIRST PLACE TOM PETERS Black	SECOND PLACE TOM STEGALL Blue/Green	THIRD PLACE TOM STEGALL AGC	FOURTH PLACE TOM PETERS Black

VEIL CLASSES			
BODY/EYE COLOR (SEVEN ENTRIES)	HAIR-BLACK (SEVEN ENTRIES)	SHAGGY (SEVEN ENTRIES)	SOLID CAUDAL (SEVEN ENTRIES)
1 Tom & Pat Allen	1 Jim & Brenda Thale	1 Bill Klein	1 Gary Moutseau
2 Dorene Tail	2 Jim & Brenda Thale	2 Michael Stever	2 Jim & Brenda Thale
3 Tom & Pat Allen	3 Jim & Brenda Thale		3 Jim & Brenda Thale
4 Dwight Parlon	4 Jim & Brenda Thale		4 Jim & Brenda Thale
FEMALE CLASSES			
ALBINO FEMALE (SEVEN ENTRIES)	AGC FEMALE (SEVEN ENTRIES)	BLACK FEMALE (SEVEN ENTRIES)	BLUE/GREEN FEMALE (SEVEN ENTRIES)
1 Gary Moutseau	1 Tom Stegall	1 Tom Peters	1 Tom Stegall
2 Gene Goldmowsky	2 Tom Stegall	2 Tom Peters	2 Dorene Tail
3 Gene Goldmowsky	3 Tom Stegall	3 Tom Peters	3 Dorene Tail
4 Mark & Pam Lewis	4 Gene Goldmowsky	4 Tom Peters	4 Dorene Tail
GOLD FEMALE (FOUR ENTRIES)	HAIR-BLACK AGC FEMALE (FIVE ENTRIES)	HAIR-BLACK RED FEMALE (FIVE ENTRIES)	RED FEMALE (FOUR ENTRIES)
1 Gene Goldmowsky	1 Gary Moutseau	1 Frank Barta	1 Frank Barta
2 Gene Goldmowsky	2 Gary Moutseau	2 Floyd Greenish	2 Frank Barta
3 Disqualified	3 Gary Moutseau	3 Frank Barta	3 Frank Barta
4 Disqualified	4 Disqualified	4 Jim & Brenda Thale	4 Frank Barta

JUDGES - Ron DeVono, Bill Klein, Gary Moutseau, Lucy McCreary, Rose McCreary, Stan Shubel, Steve Well
ASSISTANT JUDGES - John Allen, Reggie Day, Mark Lewis, Betty Rhyne, Dick Schmidt, Bob VanDerLinden
OBSERVERS - Dan Cartright, Tom Humphreys, Mike Slater, Tom Stegall

SHOW SCHEDULE

SECOND HALF 1993-1994
SHOW SEASON

GATEWAY GUPPY
ASSOCIATES
SHOW DATES
May 21 - 22, 1994

COLUMBUS OHIO GUPPY
SPECIALISTS
SHOW DATES
June 25 - 26, 1994

FIRST HALF 1994 - 1995
SHOW SEASON

EAST COAST GUPPY
ASSOCIATION
SHOW DATES
July 16 - 17, 1994
RULES DUE DATE
May 1, 1994

PAN PACIFIC GUPPY
ASSOCIATION
SHOW DATES
August 6 - 7, 1994
RULES DUE DATE
June 1, 1994

NEW ENGLAND FANCY GUPPY
ASSOCIATION
SHOW DATES
August 27 - 28, 1994
RULES DUE DATE
June 1, 1994

GUPPY ASSOCIATES
INTERNATIONAL - CHICAGO
SHOW DATES
September 17 - 18, 1994
RULES DUE DATE
July 1, 1994

GUPPY ASSOCIATES OF
MILWAUKEE
SHOW DATES
November 4 - 5, 1994
RULES DUE DATE
August 1, 1994

ALBINO DELTA (ONE ENTRY)	ALBINO TANK (THREE ENTRIES)	AGC DELTA (THREE ENTRIES)	AGC TANK (FOUR ENTRIES)
1 Dwight Parlon	1 Dwight Parlon	1 Tyrone Burgess	1 Tyrone Burgess
2 Dwight Parlon	2 Dwight Parlon	2 Dorene Tail	2 Tyrone Burgess
3 Bill Klein	3 Bill Klein	3 Tyrone Burgess	3 Tyrone Burgess
AGC BICOLOR DELTA (THREE ENTRIES)	AGC BICOLOR TANK (FOUR ENTRIES)	BLACK DELTA (THREE ENTRIES)	BLACK TANK (FOUR ENTRIES)
1 Steve Well	1 Steve Well	1 Michael Busch	1 Michael Busch
2 Steve Well	2 Steve Well	2 Michael Busch	2 Michael Busch
3 Steve Well	3 Steve Well	3 Tom Wadsworth	3 Tom Wadsworth
BLUE DELTA (THREE ENTRIES)	BLUE TANK (FOUR ENTRIES)	BLUE/GREEN B DELTA (SEVEN ENTRIES)	BLUE/GREEN B TANK (FOUR ENTRIES)
1 Tom Humphreys	1 Stan Shubel	1 Elmer Foy	1 Mike & Kathy Slater
2 Stan Shubel	2 Stan Shubel	2 Mike & Kathy Slater	2 Mike & Kathy Slater
3 Tom Humphreys	3 Tom Humphreys	3 Elmer Foy	3 Mike & Kathy Slater
4 Stan Shubel	4 Tom Humphreys	4 Elmer Foy	4 Elmer Foy
BRONZE DELTA (FOUR ENTRIES)	BRONZE TANK (FOUR ENTRIES)	GOLD DELTA (FOUR ENTRIES)	GOLD TANK (FOUR ENTRIES)
1 Ron & Betty DeVono	1 Ron & Betty DeVono	1 Bob VanDerLinden	1 Bob VanDerLinden
2 Ron & Betty DeVono	2 Ron & Betty DeVono	2 Bob VanDerLinden	2 Bob VanDerLinden
3 Disqualified	3 Disqualified	3 Disqualified	3 Bob VanDerLinden
4 Disqualified	4 Disqualified	4 Disqualified	4 Bob VanDerLinden
GREEN DELTA (THREE ENTRIES)	GREEN TANK (FOUR ENTRIES)	H-B AGC DELTA (TWO ENTRIES)	H-B AGC TANK (TWO ENTRIES)
1 Jim Alderson	1 Jim Alderson	1 Stephen Kessler	1 Jim Alderson
2 Jim Alderson	2 Jim Alderson	2 Stephen Kessler	2 Jim Alderson
3 Stephen Kessler	3 Stephen Kessler		
4 Tom & Pat Allen	4 Tom & Pat Allen		
H-B BLUE DELTA (FOUR ENTRIES)	H-B BLUE TANK (FOUR ENTRIES)	H-B PASTEL DELTA (FOUR ENTRIES)	H-B PASTEL TANK (FOUR ENTRIES)
1 Michael Busch	1 Michael Busch	1 Jim Maier	1 Jim Maier
2 Michael Busch	2 Stan Shubel	2 Jim Maier	2 Jim Maier
3 Michael Busch	3 Michael Busch	3 Jim Maier	3 Jim Maier
4 Jim Alderson	4 Jim Alderson	4 Jim Maier	4 Jim Maier
H-B PURPLE DELTA (TWO ENTRIES)	H-B PURPLE TANK (TWO ENTRIES)	H-B RED DELTA (SEVEN ENTRIES)	H-B RED TANK (SEVEN ENTRIES)
1 Disqualified	1 Disqualified	1 Jim Alderson	1 Stan Shubel
2 Disqualified	2 Disqualified	2 Jim Alderson	2 Stan Shubel
		3 Jim Alderson	3 Thomas Joffe
		4 Stan Shubel	4 Floyd Greenish
H-B YELLOW DELTA (FOUR ENTRIES)	H-B YELLOW TANK (FOUR ENTRIES)	MULTI DELTA (ONE ENTRY)	MULTI TANK (ONE ENTRY)
1 Gary Moutseau	1 Elmer & Marie Bryant	1 Dwight Parlon	1 Dwight Parlon
2 Gary Moutseau	2 Elmer & Marie Bryant		
3 Elmer & Marie Bryant	3 Elmer & Marie Bryant		
4 Elmer & Marie Bryant	4 Elmer & Marie Bryant		
PURPLE DELTA (ONE ENTRY)	PURPLE TANK (ONE ENTRY)	RED DELTA (THIRTY-THREE ENTRIES)	RED TANK (THIRTY-THREE ENTRIES)
1 Gary Moutseau	1 Gary Moutseau	1 Gary Moutseau	1 Stan Shubel
2 Stan Shubel	2 Gary Moutseau	2 Frank Barta	2 Tom Humphreys
3 Robert Kessler	3 Bob VanDerLinden	3 Tom Humphreys	3 Floyd Greenish
4 Stan Shubel	4 Stan Shubel	4 Tom Humphreys	4 Tom Humphreys
RED BICOLOR DELTA (SEVEN ENTRIES)	RED BICOLOR TANK (THREE ENTRIES)	SHAGGY SOLID DELTA (SEVEN ENTRIES)	SHAGGY SOLID TANK (FOUR ENTRIES)
1 Tom Stegall	1 Dick & Ann Wagner	1 Bob VanDerLinden	1 Bob VanDerLinden
2 Tom Stegall	2 Jim Jiro	2 Bob VanDerLinden	2 Bob VanDerLinden
3 Jim Jiro	3 Jim Jiro	3 Bob VanDerLinden	3 Bob VanDerLinden
4 Betty Rhyne	4 Betty Rhyne	4 Bob VanDerLinden	4 Bob VanDerLinden
SHAGGY VAR DELTA (THREE ENTRIES)	SHAGGY VAR TANK (THREE ENTRIES)	SWORDTAIL DOUBLE (THREE ENTRIES)	SWORDTAIL TANK (THREE ENTRIES)
1 Michael Stever	1 Michael Stever	1 Steve Well	1 Steve Well
2 Michael Stever	2 Michael Stever	2 Steve Well	2 Steve Well
3 Disqualified	3 Disqualified	3 Steve Well	3 Bob Reisch
SWORDTAIL SHAGGY (FOUR ENTRIES)	SWORDTAIL TANK (FOUR ENTRIES)	YELLOW DELTA (FOUR ENTRIES)	YELLOW TANK (FOUR ENTRIES)
1 John Allen	1 Dick & Ann Wagner	1 Tyrone Burgess	1 Bob VanDerLinden
2 John Allen	2 John Allen	2 Bob VanDerLinden	2 Bob VanDerLinden
3 Steve Well	3 Dick & Ann Wagner	3 Tyrone Burgess	3 Bob VanDerLinden
4 Steve Well	4 Bob Reisch	4 Bob VanDerLinden	4 Disqualified

EAST COAST GUPPY ASSOCIATION INTERNATIONAL FANCY GUPPY ASSOCIATION SEVEN POINT SHOW **JULY 16 - 17, 1994**

SATURDAY, JULY 16, 1994

9:00AM - 3:00PM
3:00PM - 4:00PM
4:00PM - 5:00PM
5:00PM - 6:00PM

Entries Open
Entries Close (NO EXCEPTIONS)
Judging
Hospitality Room and Awards

SUNDAY, JULY 17, 1994

9:00AM - 1:00PM
1:00PM - 2:00PM
2:00PM - 3:00PM

Open To The Public
Ballet Auction
Dinner/Dancing

LOCATION

BEST WESTERN HOTEL & CONFERENCE CENTER
80 Cohan Street, Honesdale, New York 18430
1-800-343-7890

ACCOMMODATIONS

Room reservations may be made or further information obtained directly through the BEST WESTERN HOTEL 1-800-343-7890. Mention International Fancy Guppy Association for discount. Please make reservations at least two weeks in advance for hotel.

SHOW CHAIRPERSON

VIC PITEO
800 Broadway Avenue
Baldwin, New York 11510
516-273-4332

SHIPPED IN ENTRIES

MIKE LASTELLA
1000 N. CABINETE
3904 Long Beach Road
Gainesville, New York 13372
616-678-2616

PRIOR NOTIFICATION APPRECIATED!!

1. All shipped entries must be received by midnight, Friday, July 15, 1994. NO EXCEPTIONS!!
2. Owners return postage and shipping charges of fish or they will be forfeited.
3. Any fish that may be shipped from out of the country should be marked TWO COMMERCIAL VALUE.

ENTRY FEES

SINGLE ENTRY	\$1.50
TANK ENTRY	\$2.50
BREEDER ENTRY	\$3.50
JUNIOR & NOVICE CLASS	\$1.50

AWARDS

BREEDERS' SINGLES TANKS
FIRST PLACE PLAQUES
SECOND, FOURTH PLACE AWARD CARDS

BEST OF SHOW

FIRST PLACE PLAQUES
SECOND, FOURTH PLACE AWARDS

GENERAL RULES

1. All entries must be registered by 3:00PM sharp on Saturday, July 16, 1994. No exceptions will be made.
2. Exhibitors will determine class of fish. However, exhibitors will be guaranteed at the time of entry, if needed.
3. All entries improperly classified will be disqualified.
4. No gravel, greens, decorative items or inked water will be permitted.
5. East Coast Guppy Association assumes no responsibility for any loss of fish.
6. All entries must have been born and reared in the exhibitors tanks.
7. Fish will be judged with uniform black backgrounds. Lighting will be overhead fluorescent.
8. Judging will be according to International Fancy Guppy Association standards. All decisions are final.
9. All entry fees must be paid at registration.
10. Fish will not be removed until 12:00PM on Sunday, July 17, 1994 by a Best Coast Guppy Association member to the exhibitor.
11. All tanks and bowls will be supplied by East Coast Guppy Association.

ENTRIES

SINGLE ENTRIES

Single male entries will be shown in 1/2 gallon bowls. 3/4 filled with water. A female may be added, but will not be judged. Single female entries will also be shown in 1/2 gallon bowls. 3/4 filled with water.

TANK ENTRIES

Consist of two matched males shown in one gallon container. One female may be added, but will not be judged.

BREEDER MALE

Consist of two matched males shown in 1/2 gallon tanks. Two females may be added, but will not be judged.

BREEDER FEMALE

Consist of three matched females shown in 1 1/2 gallon tanks.

NOVICE CLASS

Open to anyone that has not won a first through fourth place annual award in International Fancy Guppy Association competition in 1993, 1994 or previous show seasons.

JUNIOR CLASS

Open to anyone sixteen years of age or under at the beginning of the show year.

AUCTION

Exhibitors should indicate on entry form if they want their fish auctioned. A female must accompany all males. Fifty percent of the auction proceeds will be retained by East Coast Guppy Association.

CLASSES

DELTA
AOC
AOC Bicolor
Albino
Black
Blue
Blue/Green Bicolor
Bronze
Gold
Green
Half-Black AOC
Half-Black Blue
Half-Black Pastel
Half-Black Purple
Half-Black Red
Half-Black Yellow
Multi
Purple
Red
Red Bicolor
Snake Skin Bicolor
Snake Skin Variegated
Yellow
Junior & Novice

TANK
AOC
AOC Bicolor
Albino
Black
Blue
Blue/Green Bicolor
Bronze
Gold
Green
Half-Black AOC
Half-Black Blue
Half-Black Pastel
Half-Black Purple
Half-Black Red
Half-Black Yellow
Multi
Purple
Red
Red Bicolor
Snake Skin Bicolor
Snake Skin Variegated
Swordtail Double
Swordtail Single
Yellow
Junior & Novice

VEIL
Blue/Green Color
Half-Black
Snake Skin
Solid
Variegated
Junior & Novice

FEMALES
AOC
Albino
Black
Blue/Green
Bronze
Gold
Half-Black AOC
Half-Black Blue
Half-Black Red
Junior & Novice

BREEDERS
Female & Male

SWORDTAILS
Double
Single

INTERNATIONAL FANCY GUPPY ASSOCIATION CLEANING HOUSE LIST OF AVAILABLE BREEDING STOCK

JIM ALDERSON
20335 Oakley Springs Drive
Carmichael, CA 95608
(415) 753-1200

ELVIS BRYANT
3438 Ashby Road
Br Ann, Missouri 63073
314-428-5384

FRANK CHANG
5740 Via Pinta
Yerba Linda, California 94587
714-893-8238

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407-883-6648

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Boca Raton, Florida 33433
718-829-8508

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36172 Hurst Drive
Sterling Heights, Michigan 48313
(517) 583-0000

THE PETERS
1401 Old County Road
Deerfield, Illinois 60015
312-967-7889

BO RICHMOND
40 Wellington Court
Salem, New York 13414
716-75-0188

JIM RUSSELL
56 Elm Avenue
Branford, Connecticut 06415
860-886-7824

STAN SHUBEL
3716 Hidden Lake Drive
Livonia, Michigan 48150
313-546-9041

MICHAEL SLATER
1778 Cayuga Drive
Windsor, Illinois 62097
618-882-0620

IRVING SOLOMON
1400 S.W. 74th Terrace
Pensacola, Florida 32507
904-433-1884

TERRY WARYLANK
1934 Cape Creek Farm
Cortland, Ohio 44419
(letters only)

STEVE WELLS
977 South 72nd Street
Milwaukee, Wisconsin 53214
414-774-0807

Blue, Green, Half-Black AOC's, Half-Black Blue,
Red, variegated Blue/White

Half-Black Pastels, Half-Black Yellow

Blue, Half-Black AOC's, Half-Black Blue, Half-
Black Pastels, Half-Black Red, Red Albino, Red,
White/Blue

Blue, Purple, Red

Half-Black Yellow, Red Albino, Beardside,
Variegated Beardside

Black, Blue, Green, Half-Black AOC's, Purple,
Red Albino, Red

AOC's, Blue, Green, Half-Black AOC's, Half-Black
Pastels, Half-Black Purple, Multi, Purple, Red,
Beardside

Green, Half-Black Yellow, Purple, Red

Black, Purple

Albino, Blue, Half-Black AOC's, Purple, Red

Green, Half-Black Pastels

Blue, Half-Black Blue, Half-Black Red, Red

Blue/Green Bicolor

Half-Black Red, Multi

Purple

AOC Bicolor, Beardside (Double) Single Upper
and Lower

JUDGING BOARD MEMBERS

PAUL J. JENSEN
JIM ALDERSON
TOM ALLEN
MARC ASTLA
BARCLAY MORGAN
FRANK BART
DAVE POLINAS
STAN SHUBEL

ACCREDITED JUDGES

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47 Franklin Lake Drive, Haverhill, Mass 01830

PAUL J. JENSEN
200 Marsh Road Drive, Chesapeake, Virginia 23026

DON WATKINS
2810 Elm Avenue, Columbus, Ohio 43234

TOM ALLEN
304 Green Avenue, Cortland, Ohio 44419

TED OBELE
10427 President Circle, Las Vegas, Nevada 89134

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GARY AND V. OBELE
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DAVE POLINAS
75 Woodland, South Bound Brook, New Jersey 08850

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15 Warren Avenue, Amherst, Massachusetts 01001

JIM RUSSELL
2008 South Downy Street, Branford, Conn 06415

MARC AND GARY ATTLA
615 Chicago Avenue, Morris, Texas 75460

FRANK BART
15707 Oakley Road, Morris, Texas 75460

JIM ALDERSON
20335 Oakley Springs Drive, Carmichael, CA 95608

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8740 Via Pinta, Yerba Linda, California 94587

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3716 Hidden Lake Drive, Livonia, Michigan 48150

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36172 Hurst Drive, Sterling Heights, Michigan 48313

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47 Wayne Plaza, Cortland, Ohio 44419

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1400 S.W. 74th Terrace, Pensacola, Florida 32507

STEPHEN KWARTLER
1647 Mulner Avenue, Boca Raton, Florida 33433

PAUL J. JENSEN
200 Marsh Road Drive, Chesapeake, Virginia 23026

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334 Blue Moon Drive, Pleasanton, Missouri 63091

STEVEN WELLS
977 South 72nd Street, Milwaukee, Wisconsin 53214

STEVEN WATKINS
2810 Elm Avenue, Columbus, Ohio 43234

EDWARD RICHMOND
40 Wellington Court, Salem, New York 13414

RONALD VONN
1004 East 58th Street, New York City 10028

DISCLAIMER: All exchanges are solely between buyer and seller. The International Fancy Guppy Association, Inc. and its members assume no responsibility for any transactions, disputes, or breeding stock, only on show results and past performance of particular breeders.
Stephen Kwartler, Cleaning House Chairperson

A HOMEMADE LIQUID FRY FOOD

By Lure Phipps
Pan Pacific Guppy Association
Corresponding Member

Everybody always says it is best to feed your fry live food. Well, that is probably true, but most of the kinds of live food that fry can take need to be cultured at home, since they are not available commercially. And if your fish catch you unprepared, or if you simply do not have time, you have a problem.

In our case it started when our fancy guppies became convinced they were nibbles. All of a sudden we were up to our ears in ravenous baby fish, and the brine shrimp were not hatching well. Of course, the usual emergency solution in such circumstances is to go out and get one of the various brands of liquid fry food on the market, but that adds costs between three and four dollars for less than an ounce of food that is mostly water. Not only has it always struck me as a colossal rip-off, I of course we all know about the clever marketing schemes used by pet supply manufacturers to part hobbyists from their money such as \$2.85 for twenty-five grams of a pure, pH 8 buffer crystal, which is in fact nothing more than pure baking soda, and probably not even food-grade, but when you have a couple of hundred hungry little mouths to feed, and they are potential beet of show little guppy mouths to boot, that \$4 not-quite-an-ounce of liquid food does not go very far.

The only good thing about these liquid fry food, though, is that the baby fish do extremely well on them, significantly better than on any other kind of non-live food, and not significantly worse than if they do get live food, at

least, in our experience with fancy guppies.

The liquid fry food manufacturers advertised their little scam, at least as far as we were concerned, though, because they print the ingredients they use right on the tubes. Well, for a person with a degree in Chemistry and a reading knowledge of English, (Oh, the degree is optional) this is a blatant invitation to try and make one's own baby formula, particularly since all of the major ingredients were things that I thought could probably lay my hands on.

Well, after some creative shopping, and some trial and error, I came up with a flexible formula that can be adapted to suit different types of fry at different stages of life, and that we have had excellent results with so far. I should say at this stage that so far our tests of the food have been restricted to fancy guppy fry, and that would very much like to field test the formula on other types of fish.

First, a word or two about the commercial liquid baby foods. All the ones I have seen are basically suspensions of powdered egg, powdered nutritional yeast, and some kind of vegetable material like pea flour in water, possibly with the addition of a few nutritional supplements, or things like dextrin to keep it from lumping, or preservatives. The anti-lumping agents and preservatives are not necessary if you keep the liquid in the fridge once it is made up, and if you shake well before using.

Most brands make two formulas; one for livebearers and one for egglayers, the main difference being that the egg-layer food has smaller particles, or the suspension breaks down faster in water, so that the clumps of food available to the fry tend to be smaller and that the livebearer food often has

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some green vegetable matter added to it in addition to the ingredients mentioned above. The labels on the commercial products say that they provide excellent nutrition for baby fish on their own, and produce infusoria in the water in a short time.

The second of these claims is misleading. If you put a fine suspension of almost any kind of food particle in unsterilized water you will get infusoria in short order. As for the first claim, they do provide good nutrition, and fry usually do well when fed these products, but there are no magic ingredients in them that can not be obtained easily in most major cities across the country by a resourceful shopper.

(continued on page twenty-nine)

Powdered whole eggs can be obtained very cheaply from commercial bakery supply outlets, provided you're willing to take no less than fifty pounds at a time, or in more reasonable quantities, and still quite reasonably-priced, from places that outfit backpackers and campers. Nutritional yeast can be obtained at most health foods stores; use the Torula variety as it seems to be the most finely-powered, and there is not much difference between the types, nutritionally speaking.

Chick-pea flour is readily available a mycote that sells East Indian foods. Fish liver oil is not nearly as popular as a human nutritional supplement as it used to be, but most pharmacies still stock it in some obscure corner, usually wind up having to ask for it. Even though I buy all the ingredients retail, the homemade food is still about one-third the price of the commercial stuff, and our fry can not seem to tell the difference. Another significant advantage of making your own liquid fry food is that you can customize it to suit the specific, and ever-changing, dietary requirements of your particular fry.

Liquid Fry Food (Makes About Four Fluid Ounces)

Basic Ingredients

1. 3 tablespoons powdered whole egg
2. 2 tablespoons powdered nutritional yeast
3. 1 tablespoon chick-pea (or other kind of legume) flour
4. Water (distilled or filtered is preferable)

Optional Ingredients

1. A few drops fish liver oil
2. Flaked fish food (the growth formulas are particularly suitable)
3. A small amount of fresh vegetable, like lettuce or zucchini
4. Water soluble vitamins

To mix this up, it is best to use some kind of mechanical device, since it needs a lot of vigorous beating to form a good suspension. Have one of those miniature food-processor gizmos, which works wonderfully, but a blender either hand-held or the stand type, ought to work fine, particularly if you have a

small blending container.

First thoroughly combine all the dry ingredients. If adding flake food, and not using a blender, try to pulverize the flakes somehow (coffee grinder, mortar and pestle, rubbing between fingers) before adding to the other ingredients. Now add the wet ingredients like oil and vegetables. Do not add more than a few drops of oil; in small quantities the oil adds nutritional value and increases the size of the clumps of liquid that get suspended in the water, but if you add too much you'll end up with a slimy mess that floats on top of the water and makes a horrible mess of your tank. Add about 1/4 cup of water and blend well, then stop to check the consistency. It is really impossible to say how much water you will need to add in total, since the yeast and egg powders are very hygroscopic, and their moisture content varies enormously.

The best thing to do is add water in small increments, and keep checking, until you have something that pours like whipping cream. At this point, try it out on your fry. An eyedropper is the best way to deliver it; of course you remembered to get one when you were at the pharmacy asking for fish liver oil, didn't you? If you should get it too thin, so that it disperses immediately on hitting the water,

add a little extra pea flour. If you are not careful, though, this sort of trial and error can yield a much larger batch of food than intended. Once you have got the consistency right, refrigerate it immediately. It will go bad in a matter of hours if left out; otherwise it keeps for a couple of weeks.

For really tiny fry, you probably want to stick with the basic formula, and make the mixture quite thin, so it disperses quickly into the water. Even when you can no longer see the particles of food, you will see the fry chasing them. As the fry get bigger, you thicken up the mix, and add the oil, which makes it form slightly larger clumps of suspension in the water, which usually get swallowed before they can disperse further. You can gradually introduce flaked food, vegetable matter or whatever other food that you are planning to use when the fry outgrow the liquid formula. In this way, you avoid sudden changes in diet, which can be stressful to your fry, and reduce any potential problems with acceptance of new foods. It is an extremely easy thing to play around with, and you can experiment until you find the just the right mixture for your particular fish.

A parting caveat: be extremely careful not to overfeed, or your tanks will get very filthy very fast.

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JUNE 12, 1994 - 2:00PM

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875 South Glendora Avenue - West Covina, California 91786
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THE OFFICIAL MONTHLY PUBLICATION OF THE
 INTERNATIONAL FANCY GUPPY ASSOCIATION

VOLUME II ISSUE I

PUBLISHED BY THE PAN-PACIFIC GUPPY ASSOCIATION

JULY 1994

OUTCROSSING FOR RESULTS

By Ann Anderson, DVM, DABVP
 Internationally Active Guppy Association
 Pan-Pacific Guppy Association

When I first got back into the hobby in 1986, I visited Dr. Frank Cheng to see his fish. There were about fifty tanks in the room. Each tank housed a different line of fish. I was appalled. I had been led to believe that one hundred at least twenty tanks per line of guppies that were being bred. When queried about the "diversity" of his fishroom, he explained that the different colors kept him from getting bored with his

hobby. I don't well follow. He explained that the matter was that Dr. Cheng kept his lines pure. He didn't mix many crosses. Even though the fish may have been a little prettier, they were genetically fixed. He explained a genetically pure line could be outcrossed with any other line to obtain a new high quality line. I don't know if I can keep that fish. I know that outcrossing with any other line can destroy valuable lines. I don't agree with him.

Outcrossing should be done for a specific objective. Unless the lines are related, or

ADOPT A "PET TANK"

By Tony McInerney
 Atlantic City, New Jersey

I have not gone completely crazy and adopted a pet. Here is a little experiment everyone is trying that tanks they have enough of even more than they could need their guppies. However, they do not pay attention to the fish in the first three months.

When I gain my baby guppy, I will raise the pair in one of two weeks. If it is that old six weeks to three months old. I will have given the pair each night once a day two or three bottles each day. I will not very much extra time. I will not add to the regular portion from the hatch because I do not keep those tanks when I feed the entire fish. I will have individual tanks of fish from these tanks and have found that the size is one-third to one-half again. I will the fish in the tanks next to them that did not receive the extra feedings.

I have done the extra "feeding" guppies with different lines of guppies (Blue, Red, Green, Black, Orange, Red, etc.) and have seen larger fish from all four groups. The point is, one additional feeding a day can make a considerable difference in the size of your fish. So, try it. It's extra "feeding" routine with a tank. It gives you the idea that you may not be satisfied with any one what happens. You may end up with some prize winners.

BIRDS, BEES & GUPPIES

By Ann Palmer
 Westside Guppy Association

The sex education of a child is a delicate thing. None of us wants to "blow it

always had a story of ending up like the woman in the old joke who was asked by her child where he came from, and after she explained the technical process in a well-chosen medical vocabulary, her son looked at her intently and said, "I just wondered, Mamma, came from Hartford, Connecticut."

My husband and I talked about it and we

figure what better way to explain the beautiful reproduction cycle of life than through the animal kingdom. We promptly bought two pairs of guppies and a small reservoir and gleefully sat back and waited for the guppies to "do their thing". Our wives, conversation eventually assumed a pattern.

"What is now at Heydon Place by the sea?" my husband would inquire.

Mrs. Guppy is a n-e-a-n-n-e again" would say.

(continued on page three, turn first column)

INSIDE THIS ISSUE

- 4 A ROOM FOR THE FISH**
By Dr. Peter A. Jolly
Guppies are quick to learn and can easily be trained to do a variety of tricks.
- 8 SOME FOOD FOR THOUGHT**
By Linda Mason
You wouldn't feed your fish the same food every day, do you? Subject your fish to a similar fate.
- 10 FRESHWATER FISH DINEABLE**
By Stuart Denisch
An occasional fish meal is healthy for your fish. Try it with your guppies.
- 12 TIPS TO THE NOVICE GUPPY BREEDER**
By Richard W. Fleming
Through knowledge and careful breeding, you can produce a variety of guppy colors.
- 17 HOW TO CHOOSE A FILTER SYSTEM**
By Jim Martenson
The most important consideration when setting up an aquarium is the type of filter system to use.
- 20 ONE MAN'S OPINION**
By Linda Mason
The "old pros" easily forget the problems a novice guppy breeder encounters. Let me help you.
- 21 SOME OF THIS, SOME OF THAT**
By Paul Gurnik and Mark Shubel
Another round of thought provoking questions to stimulate your mind.
- 22 MESSAGE FROM THE PRESIDENT**
By Jim Anderson, D.V.M.
Monthly message from the President of the International Guppy Breeders Association.
- 23 ACCUMULATIVE POINT TOTAL**
By Rudy Marchbanks
Show your point totals, including results from South Jersey and Southern Guppy Shows.
- 24 GATEWAY GUPPY ASSOCIATION SHOW RESULTS**
By John Allen
Official show results from Gateway Guppy Association show the weekend of May 20, 1994.
- 26 PAN PACIFIC GUPPY ASSOCIATION SHOW INFORMATION**
By Jim Anderson, D.V.M.
Complete information for Pan Pacific Guppy Association show the weekend of August 6, 1994.
- 27 CREAKING HOLDS**
By Neilson Kaurin
Current list of available guppy breeding stock for sale from the country's finest breeders.
- 28 RAISING FANCY GUPPIES FOR SHOW**
By Widge Hall
If you want to get into the fun of showing your guppies next season, now is the time to start.
- 29 PAN PACIFIC GUPPY ASSOCIATION MONTHLY BOWL SHOW RESULTS**
By Davidson Tull
Monthly bowl show results from the May 1994 meeting of the Pan Pacific Guppy Association.

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The Guppy Foundation is published monthly
except January by
Pan Pacific Guppy Association
Business offices located at
11003 Culver Boulevard
Culver City, California 90230

Application to Mail at Second Class Prepaid
Status is pending at Culver City, California.

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For subscription information, contact:
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Subscription rate: \$20.00 per year for eleven issues. Foreign subscribers must add \$5.00 per year. Please use international money orders only. Allow six to eight weeks for delivery of first issue.

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OUTCROSSING FOR RESULTS

If you have prior knowledge of the results of an outcross, the results are going to be less than desirable, right? In ninety percent of the time. Furthermore, it is going to take you four to six months of feeding, spawning and tank space to decide if the cross fish are worth keeping. This is time, energy and tank space that could be spent on improving your pure lines of guppies. Have wasted immeasurable time and tank space making wild outcrosses in the past. Some of these crosses were necessary to learn the inheritance properties of my lines. Unfortunately, most were a complete waste of time. Now when I make an outcross, I have a plan and an objective. I have put together a list of guidelines that should help you make some choices when trying to improve your stock.

1. Try to use related lines to outcross.
2. Have a specific goal in mind. (better pattern, better dorsal, more size,

etc.)

3. Breed two females. Keep one batch from each female, then throw them out. Otherwise you will end up with too many of the hybrid fish.
4. Breed the hybrid offspring back to the pure line. Always take a hybrid male back to the pure line female. This helps reduce the chance you will get a female that carries undesirable genetics.

5. If you can obtain prior knowledge of the results of the cross, it will save you a great deal of time. Be forewarned, however, if another breeder reports certain results crossing two different lines of fish, you may or may not get the same results depending upon which lines you use to make the cross. (The genetic makeup of fish plays an important part in the results).

6. Use the male from the line you that is genetically stable. For example, say you are working with two blue lines. One line has good color, finnage, form and is very pure. The other line has some tail shape problems but great size. The most logical step is to use the male from the large line and the female from the smaller pure line. This will reduce the chance you will get a poor female and enhance the probability that the male phenotype will be transferred to his progeny.

These simple guidelines should help you avoid a common problem with new and old guppy breeders alike, tanks of hybrid fish that are a genetic nightmare. Do not be afraid to make crosses to try to improve your current lines, but do not get caught on the edge of the genetic twilight zone where your established pure lines dwindle, then

BIRDS, BEES & GUPPIES

"Put a little salt in the water. That will cure anything," he murmurs.

"They were born!"

"Daddy" said our son, "that means she is pregnant!"

We added a third aquarium which was promptly filled with salt water and three pail of sea horses.

"Again!" Daddy choked. "Can't we organize an infirmarium basketed room in there or something?"

"Now, want you to pay special attention to the female?" instructed. "The chances are it will not take her long to be with child and perhaps you can see her actually give birth."

The first aquarium began a second tank with no relief in sight.

"The female does not give birth."

"Are you getting anything out of your experience with guppies?" I asked my son delicately one afternoon. "Oh yeah," he said, "they are real!"

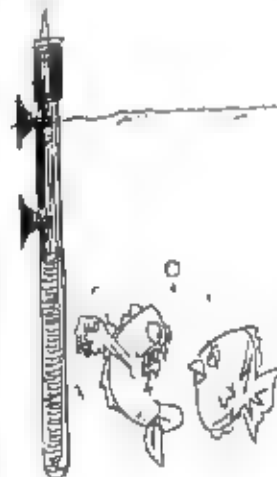
"Mom" said my son peeling a banana. "Ridiculous!" said smiling. "Females always give birth." The male promptly began to take on weight, though I saw his snout swell. He became a mother on the twenty-second of the month.

"I mean, have you watched the male and female? Do you understand the processes that go into the offspring? The role of the mother in all this?"

"That is pretty interesting," observed my son. "I hope when I become a mother it is as hard. I don't need water that long!"

"Oh sure," he said. "Listen, how did you know which one of your babies to eat when

We blew it. We figured we would



"Do not know about you, but I can't stand being strapped when I'm frozen!"

A ROOM FOR THE FISH

HOW TO CONVERT AN EXISTING ROOM INTO A FISH ROOM

By Du Ping & Liang

The project described in this article, converting an existing room, garage, or outbuilding into a fish room, requires much less work than building a new fishroom from scratch. The one thing that does not change, however, is the need for sufficient planning before diving the first roll.

The obvious first step is to choose the room or area that will be converted to a fish room. I have always been reluctant to use an upstairs room because of the weight and volume of water involved. Unless carefully disinfected, the weight of the filter aquariums may exceed the carrying capacity of the floor. It is also inevitable with that much water that some of it will be spilled, creating a leak. As luck would have it, a kitchen water will

first in way downstairs, damaging walls, floors, carpeting, and even furniture. It is no wonder that landlords are reluctant to allow waterbeds in upstairs apartments. The ideal location for a fish room is a garage or basement, where the floors are usually made of concrete and are less likely to suffer water damage. Alternatively, a detached outbuilding, such as a garage or even a stable, can be converted into a fish room with only a small investment in materials to properly insulate the interior floor, so, an outside, pool in the winter can be converted into a fish room, but few hobbyists have such a room to spare.

It's, of course, so that the fish is below ground level, a reliable method for removing water.

החלטתו של בית דין זה, תהיה כפוף להחלטת בית דין זה, וכל עוד לא יתקבל פסק דין אחר, יישם בית דין זה את פסק דין זה.

The real problem is easier to solve. The walls can be painted with a rubber-based waterproof paint, such as is used for swimming pools, or the walls can be covered with a vapor barrier made of polyethylene three to four mils in thickness. The polyethylene vapor barrier is probably less expensive than the paint, but care must be taken when handling the polyethylene to ensure that there is adequate overlap between the joints.

Because a fish room is usually warmer than the surrounding basement walls, moisture is drawn in. The severity of the problem varies with the region of the country in which you live. If you live in the warm and dry parts of Arizona, California, or Nevada, moisture is unlikely to be much of a problem. On the other hand, if your home is in New Jersey, Oregon, or Vermont, where some months are very cold and damp, the moisture

(1997) *Journal of Management Studies* 34(1): 1-15

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build up or improve skills can be
achieved.

Removing water from below ground level requires a little more ingenuity. If you are fortunate enough to have a basement already fitted with a drain, your only concern is whether the drain is part of the area that will be used for the fish room. If not, a drain hose can be run from the fish room to the basement drain whenever it is needed.

One of my fish rooms was in a basement without any drain. I was necessarily to build a concrete sump into the floor that contained a small pump and a float. When enough water filled the sump to raise the float, it triggered the motor which pumped the water to an outside drain. This draining/siphoning system involves the installation of polyvinyl chloride (PVC) gutters across the front of the lower shelf support for the tanks. Siphoned water from the tanks into this guttering which was arranged so that the water discharged into the concrete sump. The outlet from the automatic sump pump went through a basement wall and ended at a surface water drain serving the roof of the house.

Installation of a simple one-way flow valve at the final discharge point is advisable. It will prevent rodents and other creatures from finding their way into the fish room unlike the charming cartoon creatures presented by Walt Disney. A rodent got into one of my fish rooms and, much to my dismay, gnawed through an electric line

A coarse mesh screen should be placed in the guttering to prevent gravel that is accidentally siphoned out of the tanks from reaching the pump and damaging the motor in the pump. If you are breeding fish and are planning to, you should also use a fine mesh screen to prevent the loss of fry that are inadvertently siphoned from a tank.

The pipe that extends from the sump pump to the outside should be as short in length as possible to minimize any damage due to freezing. Low-density or high-density polyethylene pipe, 3/4-inch in size, is ideal for this purpose and is much easier to work with than copper. This pipe is available in the plumbing department of

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Send your questions for potential answers by email to: judging@burr-therneau.com. Don Shufel, former acting Team Chairman of the International Freestyle Group, Answers in the Series of Two. Some of your columns of the Gracely Roundtable to

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Pan Pacific Guppy Association

For the purpose of this study, the following hypotheses were formulated:

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your local hardware or building supply store. Water in the pipe that rises from the pump to the outside drain pipe will drain back into the sump, thus preventing residual water the outside pipe from freezing.

The vapor barrier or paint will prevent moisture from entering the fish room, but insulation is also necessary to maintain the temperature of the room efficiently. After a layer of polyethylene is hung across the walls, a layer of 3-1/2 inch thick fiberglass insulation (R-11) is installed. Another layer of polyethylene is then placed over the insulation. The insulating quality of the fiberglass is much greater when it is placed between the two water barriers.

are in one project, exhibited a lack of well control and built an inner wall of one-inch by eighteen-inch hollow concrete blocks that were three inches thick. This created a new inner well for the fish room that not only was waterproof but also energy efficient. Admittedly, this was a bit extravagant, but I had plenty of blocks left over from an earlier construction project, and it seemed like a good way to use them and also enhance the fish room. As it turned out, however, it was a lot of work with little reward. For similar projects since then, I have simply lined the exterior walls with 4-foot by 8-foot sheets of wall board or mosaic.

In the project am describing, added insulation to the ceiling and covered it at

(continued on page 54)

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with 2-foot by 4-foot acoustic tiles were doing this same project today would merely nail 4-foot by 6-foot sheets of aluminum-faced bubble (tm) or similar polyurethane panels to the existing frame. These panels are excellent for this type of project. They are economical, light in weight and easy to cut, offer a fair degree of insulation and more importantly provide a substantial barrier to moisture from the tanks that otherwise is likely to travel up into the rest of the house.

This scheme of constructing an insulated, moisture-proof inner layer in an existing structure can be used for other types of locations, such as an outbuilding, barn, stable, detached garden, garden shed, etc. or for a fish room. The requirements that apply to all of these potential fish room locations that should be kept in mind. First, after the insulation is installed, a vapor barrier on the warm side of the insulation is absolutely essential. If moisture gets into the air pockets in the fiberglass, they will eventually collapse, eliminating the insulating qualities of the fiberglass. Second, some type of water draining facility must be in place or be installed. Third, there must be a supply of electricity and water to the location.

If only part of an existing structure is to be used, as is often the case with a barn, stable, or garden shed, an insulated partition wall must be erected. Basically this dividing wall consists of a layer of fiberglass between layers of drywall or wall board, with two-inch by four-inch lumber as the framing support. The frame is built on the floor. The length of the frame should be 1/4 to 1/2 inch less than the actual distance from the floor to the ceiling so that when the frame is lifted up into place, it can be held in position with wedges hammered underneath the frame. The frame is then secured in place by nailing or screwing it into the existing floor and ceiling. Finally, the frame is filled with fiberglass and covered with sheets of drywall or wall board.

If a door is needed for the fish room area, the frame can be tailored to accept a ready-made door frame before it is filled and

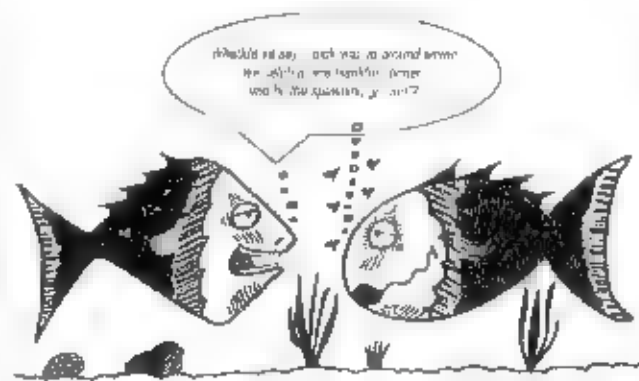
Continued on page 200



Submitted by: Anna Marie



Submitted by: Joseph Hinkley



Submitted by: William H. Hinkley

wedged up in place. When installing a door, extra care must be taken to make sure that the frame is absolutely straight. Otherwise, the door will not hang correctly and will always be swinging open or shut depending on which way is the most convenient under Murphy's Law. Choose a door that is as wide as is practical to allow easy access with large, heavy tanks and other equipment. A door that is three-foot, three inches wide is a good choice.

Usually, a supply of water is available in a basement project because that is where the water supply for the house is located. With one of my basement projects, experimenting with using just a cold water supply to the fish tanks. For partial water changes, would siphon out twenty to thirty percent of the aquarium water and replace it with cold tap water. The replacement water was added gradually while I was working in the fish room, and I never changed more than fifteen percent of the water at a time.

Although this procedure will seem unwise to those aquarists who are careful to follow good aquarium management techniques and add only water of the same temperature as the tank water, I can only say that it worked for me. At the time, I was experimenting with this technique, was keeping some of the more hardy varieties of cichlids, bolies, armored catfish, characins and eels. At no time would I suggest adopting this method with tanks of discus or the less hardy species of tetras, barbs and rasboras, for example.

Plumbing into an existing water supply with today's copper fittings is simplicity itself. To begin with, turn off the water supply to the house. Then, drain the system by turning on the faucet at the lowest point in the house. Once you have determined where you want to tap into the hot and cold water pipes, cut through the pipes at that point with a fine-bladed hack saw, removing approximately one inch of pipe.

Careful removal of the one-inch section permits the installation of a "T" union

The pipe should be allowed the drain (for light) before soldering the pipe in place. Otherwise, the union will not get hot enough for the solder to flow and make a water-tight seal. Use a portable propane torch with a small jet attachment and purchase solder in coils with the flux already incorporated into the solder. Above all, make sure that all joints are clean and dry before applying the solder to the heated union. This will ensure a tight seal and no water leaks.

I suggest that you put and lay out the pipe and add the necessary fittings before you actually solder anything. This will reduce the chance of errors and will also make the assembly go faster. Instead of attempting to bend pipe into elaborate configurations, use angle and elbow joints.

Obviously, the cost of converting an existing space into a fish room is substantially less

expensive than constructing a room from scratch. And basic adjustments are simple: upgrade the insulation and install some sort of drain, a water supply and electrical wiring.

An apartment I lived with the fish room that contained the second inner wall was to install aquarium heaters with thermostats in the twenty tanks. At the time, this appeared to work quite well, and there was a minimal increase in the electric bill. A drawback to this setup was the initial outlay for twenty heaters and the additional wiring required.

Common to all fish rooms, whether built from scratch or a room conversion, and wherever they are sited, is the need for adequate electrical wiring, a supply of air to each tank and shielding for the tanks. I will deal with these topics in the next issue of the Guppy Roundtable.

CHAMPIONSHIP SHOW GUPPIES



by IFGA WORLD CLASS
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SOME FOOD FOR THOUGHT

By Linda Wilson
Weston Aquarium Society

What's for supper, Mom? Yuck, same old same old cornflakes, Mom? Could we at least have some milk on them for once? Is this your kids talking? Or your fish? No, you would never feed your family the same foods night after night would you? But we bet you repeatedly throw the same old flakes into that fish tank every night, don't you?

Now maybe your kids would be happy to eat at McDonald's every night of the week and Sundays too. And your fish seem just fine on this diet of staple flakes. Don't argue the point of today's quillity in fish flake food as it is the main ingredient of my fishes' diet and a well-accepted choice of flake or ground dry food can be relied on once you have tried all or most of the brand names on the market. My fish have refused one flake food after a two week trial and accepted others with reluctance and obviously shown me their favorite.

So what is for supper tonight? Are you

looking peas or beans, perhaps broiled fillet of headlock? Has it ever occurred to you to set aside an uneaten portion to offer your fish? Do fish eat veggies in the wild? You bet they do! Have you ever tried to grow plants in a guppy tank? They get eaten up quickly as one of my favorite pet store people found out when he decided to display plants in a fancy guppy tank. Read a few books and you will find fish eat fruit and nuts and plants besides the normally thought of worms and bugs floating down the drain. Fish also eat fish. After perusing enough books in your research you will find which species eat what. But at home in your own tanks, why not experiment? Start out slowly with small amounts of food stuffs or you may be doing a radical water change at bed time. When you feed your fish you watch them eat anyway. You're watching to see that all inhabitants do eat, so not eating may indicate a problem. So why not see what they'll eat from your kitchen.

My fancy guppies were not eating at all for awhile and I read that they like pieces of shrimp. Also read that guppies were big, fleshy eaters which did not seem to be my problem. My frugal nature balked at \$6.90

per pound for shrimp in the shell but my fish do have to eat after all. They liked those shrimp so much I decided to cook some for myself and found out how delicious they were. It reveals the wisdom of my food on them. No, I have not tried dandelion and found out they will take chunks of cooked vegetables on occasion. The guppies seem to prefer chunks of meat such as beef heart, Japanese beetle larvae, large whole earthworms and even big fat corn earthworms that actually hope infest my compost again.

If the fish do not eat your offerings you will have to siphon them off unless you have snail who will eat it but do not give up. Try again as the food stuff will be unfamiliar at first because they are still used to dry, floating pink stuff. Next time you plan to cook fish or liver for instance set aside a small portion depending on your fish population and cook it separately without all the seasonings we humans like such as butter, salt, pepper and various herbs and sauces. Cook the liver or fish in a little water (called poaching) then put it through a food processor or chop it by hand with a sharp knife into small enough pieces for your particular fish. i.e. my guppies would ignore large pieces that might entice my larger fish to dine. They would prefer a chunk about the size of pin heads.

Vegetables are the mainstay of my personal (continued on page 10)

GUPPY ROUNDTABLE

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Volume One & Two of the Guppy Roundtable, the official monthly publication of the International Fancy Guppy Association contains facts and information you will not want to miss. You will gain more joy and knowledge from your guppies after reading both volumes of the Guppy Roundtable. A wealth of information written by the country's preeminent breeders of fancy guppies for the incredibly low price of \$25.00 per volume, which includes all handling, shipping and Priority Mail postage charges.

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delicious as an avid gardener (and hugo!) and I think they get overlooked by many fish keepers. We all know how to culture lots of live foods like white worms and microworms and how to hatch brine shrimp, right? No, we do not all know but more techniques should be discussed in future articles, for now I mean to encourage you to experiment in your kitchen. Many of you have heard that live bearers are veggie freaks, and some guppies eat plants, and peacock keepers cook zucchini so I will ask, what about lettuce or pumpkins? Have you tried them? Read about one fish keeper who must have done some experimenting to find out her fish like to eat marjorine, and eventually lettuce and all other offerings. He went to court about this one!

Because I enjoy baking occasionally I was moved to make a pumpkin pie yesterday and as I had a few normal size pie pumpkins from my garden I began from scratch to make that pie. As I put the chunks of cooked pumpkin through the food mill I wondered how my veggie loving guppies would respond to pumpkin. Why I have constant thoughts of my fish do not know, but I can tell you that pumpkin was greedily accepted. All my sailfin families cleaned it up overnight so there was not a trace in the morning. Just before my bedtime I feed my sailfin living in various communities. They include species from the families Callichthyidae, Loricariidae, Doradidae and Mochonidae and have found they also appreciate chopped earthworms and lettuce. All my fancy guppies were thrilled with the pumpkin and my West African herbivorous cichlids, Tangia atrofasciata, gobbled it up as fast as they eat lettuce.

Even my angels will eat some vegetable matter but very little. They would prefer to feed if to my guppies then put the guppies in their tanks. I have had excellent responses to peas, green beans, lettuce, and squashes both winter and summer types. None of my fish seem as fond of cauliflower and broccoli as I am which leaves more for me, of course, but I did try it and they will eat some of it. Cabbage, dandelion greens and kale leaves treated like lettuce have been well received also. I have even tried potato, grated apple and melon, chopped tomato, etc. But use caution as it is possible to pollute your tank

To prepare these foods, blanch them first. This means bring a pot of water to a boil, add the washed lettuce leaves for instance and let the heat watch the leaves quickly wilt, remove and drain them, then put them through a food processor adding a little water as needed to help the machine do its job. My little food processor is called an Oster and it does small amounts easily. Any vegetables should be quickly and lightly cooked so the vitamin C, which is destroyed by heat is not totally destroyed. Vitamin A, is not harmed by heat but, some minerals such as potassium and magnesium will leach into the cooking water such as in boiling potatoes which hold the nutrients better when baked. But you all know this anyway, right?

Once the veggies have been prepared, they should be covered in the refrigerator or frozen ahead in thin frozen zip-lock type plastic bags from which pieces can be broken for future feedings. While harvesting

my garden throughout the growing season I put up some foods to feed my fish this winter. People with quick access to supermarkets can find discounted vegetables such as spinach, squash and lettuce, to prepare any time of the year. Even with winter approaching one could still find subbuga dandelions or other kale, and chicory available and there are still carrots to dig and Brussels sprouts to pick. While you are experimenting, you can set up a jar in the window with chopped lettuce and some snails to start an infusoria culture for your fry or brine shrimp.

So next time you cook, try sharing your dinner with your fish. Set aside some of your cooked peas or butternut squash you reason them. Try different foods, experiment. Go slowly, with small amounts and watch their response. Your betas in gourmet may surprise you by liking lettuce too. If you notice your feeding water sprouts plants have no roots left. It's time to start feeding lettuce!



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FRESHWATER FISH DISEASE

by Susan Welsch
Brooklyn Aquarium Society

Fish disease is the most frustrating problem that can happen to an Aquarium Hobbyist. The slow death of some of your favorite fish can be both disheartening and frustrating to the beginner as well as the seasoned hobbyist. For our Freshwater friends here is some information about the diseases that can decimate our tanks.

ICK

(Ichthyophthirius multifiliis)

Often called the "white spot" disease because it manifests itself through the presence of numerous, tiny white spots on the body and fins. ICK is perhaps the most common type of aquarium fish disorders. If ICK is caught in time it can

be treated with several commercial remedies. If neglected, it will lead to the death of not only the infected fish, but in all probabilities the entire aquarium population. ICK is extremely contagious and will spread rapidly through a large or small tank if not put in check early. ICK is a parasite that cannot be treated while still encysted in the skin of the fish. This is because medication cannot penetrate the cyst until it opens.

DIAGNOSIS

For early diagnosis of ICK watch your fish closely each day for about five minutes. Check the fish with the most transparent fins as the cysts will show up there earliest and be most visible in the transparent fins of fish. If you notice cysts on one fish isolate that fish and watch closely to see if the cysts spread to the body of the fish.

TREATMENT

Raise aquarium temperature a few degrees. Your tank's temperature should be brought up to raise it to about eighty-two degrees Fahrenheit. If your temperature is below seventy-five degrees then raise it to a maximum of eighty degrees Fahrenheit for best results. This speeds up the parasite life cycle and the cyst will open earlier.

Add the medication prescribed by your favorite Aquarium Shop (usually they are qualified to recommend the best commercial medication for your aquarium size and fish type) in the doses and for the number of days recommended by the manufacturer. Do not add more or less than prescribed as your results may not be as good as if you follow the established directions. As the cysts break open the parasite will be killed by the medication BEFORE finding another host fish in which to breed. Also, if not all, medication manufacturers recommend a water change twenty-forty

(continued on page twelve)



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hours after the use of the medication is dispensed. This is an absolute must for most hobbyists. The fish will appreciate the new, properly treated water and will respond and recover quicker from the medication. Again, after the water change watch for additional latent signs of the disease.

FUNGUS INFECTIONS (Saprolegnia)

Fungus infections can affect ANY fish regardless of the species, though this is not a real disease it is an eye-sore for any hobbyist and can lead to further types of disease and infection of the fish population.

Fungus infections are a recognizable as a "cottony" growth about a single or multiple sites on a fish. Since fungus cannot attack a healthy fish, the site of the infection usually is a place where the skin has been bruised or torn. This can happen when a fish is netted or has scraped itself against a rough surface in the tank or after having had a "fight" with another more aggressive fish. If not treated the infection will spread and possibly kill the fish. If you have had any dead fish in your tank for some time you will see that they will literally become covered with fungus.

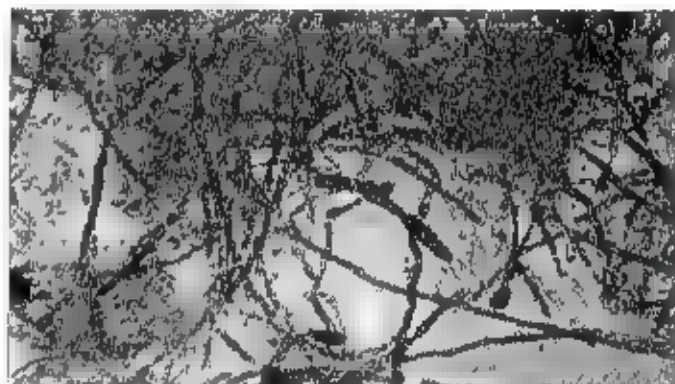
TREATMENT

The infected areas may be carefully "painted" with a dilute (1:10 solution of commercial strength) preparation of either IODINE or MERCURIOCHROME. The entire aquarium may also be treated with a one percent potassium dichromate solution, or one gram of crystalline potassium dichromate to seven gallons of water. After the fish are cured, a partial water change must be performed. This treatment should last approximately one week. There are also commercial remedies that can be bought at your favorite aquarium supply shop. They should be used as recommended by the manufacturer. Your aquarium supply shop will be pleased to help you by recommending the proper medication for your type and size of tank.

(continued on page twelve)



Infected specimen of Ichthyophthirius multifiliis



Saprolegnia spp. hyphae with spore capsules. Length included spore capsules in the middle of the hyphae

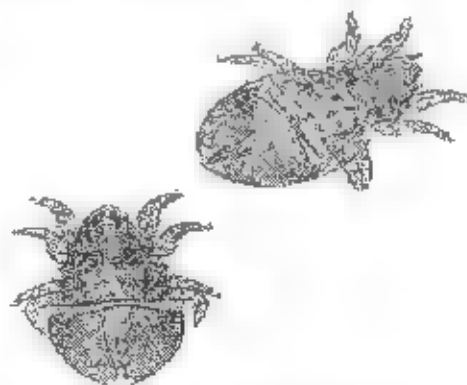


Figure 4.0.1.2

FISH LICE (Argulus)

Fish lice are parasitic crustaceans about the size of Daphnia that attach themselves to the skin of the host fish by two suckers. They are not an actual disease but are usually introduced into your tank from a tank that has been infected with them.

DIAGNOSIS

Noticeable as lumps on the exterior of the host fish. The fish will live off the blood and nutrients of the host fish. This condition is usually not fatal if caught early.

TREATMENT

Treatment of FISH LICE is very EASY. Just take the fish out of the water and with

a pair of tweezers pinch off the crustaceans. The attachment spot must then be painted with Mercurochrome or some other disinfectant to insure that the attachment spot heals properly. Of course once they are observed you should run a complete check of all your other fish to insure complete removal of all the parasite.

VELVET DISEASE (Gyrodinium aureolum or D. pillularis)

This is another of the highly contagious diseases that most fish are susceptible to. This disease is found more commonly in freshwater aquariums than salt water.

DIAGNOSIS

The disease may resemble CK in that both are signaled by the presence of small

white spots. In Velvet Disease the spots are smaller and have a velvet like appearance, thus the name. Often the skin of the fish looks like it was peppered with a fine white powder. The disease will transmit itself on any part of the fish and spread rapidly. The infected fish will not school, swim higher in the tank and probably not eat. Take heart though, the disease is treatable and, in most cases, not deadly.

TREATMENT

- The addition of a five percent methylene blue solution (approximately two drops per gallon of aquarium water) or Acriflavine substituted for the methylene blue (same strength) should be added. The tank should be kept in complete darkness.

(continued on page thirteen)

TIPS TO THE NOVICE GUPPY BREEDER

By Howard W. Fleming
Vice-President, Guppy Association

The hobby of successfully raising good show guppies can be very fulfilling. In more ways than one (what it seems to fill the most is time). It can also fill the pocketbook very quickly. Here are some helpful hints that could not only save you some time but some money too.

Do you have trouble with feeding too much brine shrimp to one tank of various guppies and not enough to another? Obtain a medium or large plastic syringe from your local pharmacy. Use the syringe for feeding freshly hatched baby brine shrimp to your guppies by using the "air" markers on the syringe.

Looking for equipment to buy? Do not be afraid to shop around. In the majority of cases the price you pay can be beat by someone else (the trick is locating that person). Whenever possible buy in quantity; you will save more money. The store owner will be more inclined to give you a discount this way. Another

help is to purchase your guppy supplies from one of the many mail order firms specializing in pet supplies (several companies advertise their fine products in the Guppy Roundup).

Do you have trouble cleaning your inverted brine shrimp containers because of the small neck? Try using clear plastic jugs and cutting the bottom out. This enables you to reach inside and thoroughly clean the container.

Are the bottoms of your tanks littered with food your guppies can not eat? Many of the foods we feed our guppies are not manufactured to be guppy sized morsels, even for our largest females. What can be done about this frustrating and wasteful problem? Sift the food, and what will not sift through can be reduced to finer particles in your blender or food processor.

Does your brine shrimp net drain slower each time you use it? That is because the eggs, salt and shrimp dry in the fibers of the cloth. Try boiling your shrimp nets after each use. This not only cleans them but sterilizes the nets too.

Is siphoning your guppy tanks a problem? Buy a small plastic funnel; heat slowly over an open flame and flatten the large end between two pieces of wood until you have two parallel sides (flat cool in that position). Then heat an old knife good and hot and cut the large end real flat. The snail and will fit into most large plastic airlines and can be sealed to the airline with a silicone sealer. You now have a siphon tube that will cover a large area. For maximum suction power keep volume capacity of the open end as close as possible to the volume capacity of the siphon hose.

Do you want better brine shrimp hatcheries? Try adding one to two tablespoons of Epsom salt to your regular amount of salt when preparing your hatching solution.

Looking for an easy way to keep your aged water containers full forever? Run a water pipe to your container and attach a float-type shut-off valve to where it will turn off the water before the container overflows. When the level of water drops below the shut-off point, the water will turn on and when the container is completely filled, it will shut off.

Finally, need a convenient way to separate brine shrimp from the eggs? Cover a section of your hatching container with opaque cloth and train a light on the open end. The shrimp will gather towards the light.

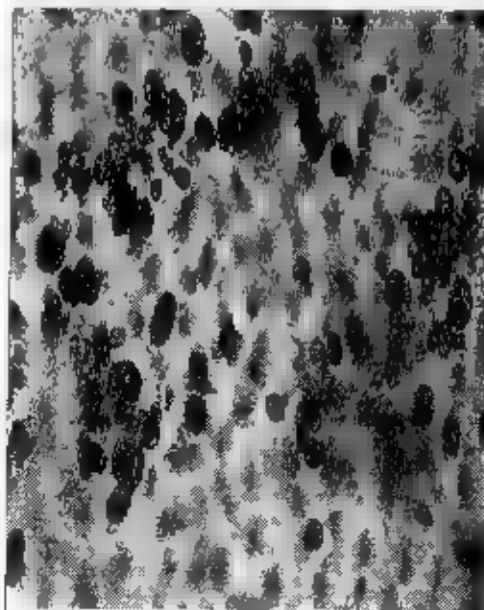
Remove and sterilize (or discard) all plants. The fish should fast for five days. Then allow the fish to rest for three days in a complete change of water. Then repeat the treatment one more time. Only after the treatment cycle is completed should any plants be added back to the tank.

ANCHOR WORMS (Lernaea)

Though this is really NOT a disease (it is known as the "disease" of the Goldfish lover) although Anchor Worms have been known to attack guppies. Anchor Worms are unattractive and will usually kill the fish if not removed. A goldfish lover's nightmare is to see one or more of these worms on his or her favorite Oranda.

DIAGNOSIS

Anchor Worms are easily spotted by the hobbyist. The female Anchor Worms (not actually worms but crustaceans) attach themselves to the skin of the fish and burrow into the muscle tissue between the scales. When attached they will reproduce and the young will find other fish to feed off.



Anchor worms on guppy skin

TREATMENT

The Anchor Worms MUST be removed with a pair of tweezers or a needle. After removal, carefully "paint" the spot of attachment with Mercurochrome. Then segregate the fish for forty-eight to seventy-two hours to insure that none of the worms were missed. With the removal of the worm(s) the fish will be able to swim faster, eat more readily and less appear to be happier in general. After the waiting period is over return the fish to the tank.

POP-EYE or EXOPHTHALMIA

As the name implies this malady appears as a bulging of one or both of the fish's eyes. It looks like there is some "pressure" behind the eyes of the fish and that pressure is forcing the eyes right out of their sockets.

DIAGNOSIS

The eyes of the fish begin slowly to bulge. It appears that there is pressure behind the eyes and that pressure is slowly forcing the eyes right out of their sockets. The areas around the eyes get enlarged and

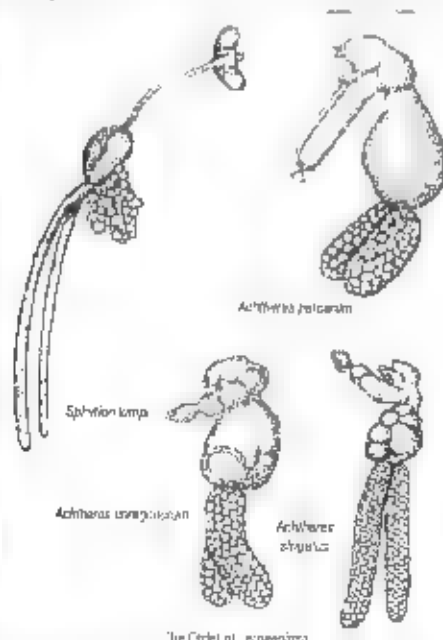
the fish's color will heighten in intensity. The fish will tend to swim by themselves and/or swim nearer the water surface. Most fish, if left alone, will continue to eat at the onset of POP-EYE but eventually will not eat at all. Breathing eventually gets rapid and swimming control becomes erratic.

TREATMENT

This malady is usually NOT contagious. I have found no need to remove the infected fish and I have had some (not many) recover. I have tried using some antibiotics with limited success. Under most conditions the fish died, so I heartily recommend discarding any fish with pop-eye that does not get. This will avoid you having to watch the fish suffer. Of course if you observe this malady you should run a complete water check to see if there has been a change in the water conditions since your last test. A water change is also recommended.

GAS BUBBLE DISEASE

This is one of the NON-DISEASE diseases (continued on page thirteen)



The Order of Gas Bubbles

which strikes fish. This "disease" is really a physical problem with your fish and can be treated if caught early.

DIAGNOSIS

Infected fish will appear to have enlarged areas of the body and will have trouble staying near their normal swimming areas. Fine gas bubbles that accumulate under the skin and act as a balloon and force the fish upward towards the water surface. This is similar to placing a balloon in a pool of water and trying to keep the balloon under the water. Some fish can recover but usually not in their home environment.

TREATMENT

It is suspected that the cause of this malady is due to supermaturation of the aquarium water with oxygen. This occurs when there is limited water movement so that the oxygen along with the waste gases do not dissipate into the air. Better water circulation will increase the dissipation of excess gases. To try and save the infected fish place it into a small bowl/container that is NOT very deep. This way the fish does not have to fight to remain below the water line. Use no air stones or filters and feed very lightly if at all. If all else is well the fish the gas bubbles under the skin should disappear in a few days and he can then

be returned to his home environment.

SWIM BLADDER DISEASE

This is yet another of NON-DISEASE diseases which strike fish. The cause of this "disease" can relate to several problems caused by the hobbyist. Though not a fatal disease, your fish may never recover. Most fish will contract this malady due to poor diet, chilling, or sudden changes in water temperature or pressure.

DIAGNOSIS

Infected fish will begin to have trouble swimming. The fish will become very disoriented, falling head over tail through the water. The fish will not eat and will not school (if a schooling fish, the other fish will tend to stay away from the affected one). After several attempts to swim correctly the fish will become fatigued sinking to the bottom to rest, finding swimming just too difficult. It can find a nice place of gravel and just rest there. It will lay there upright, breathing rapidly but not moving. Otherwise it will try to wedge itself into any hole or between plant leaves and just remain there.

TREATMENT

have found that if you attempt to help the fish by removing it from the tank it usually

will die. This is because the fish has gone into shock due to its inability to swim and the extra shock of removal from the tank is usually too much for the fish. You can watch it for several days and if there are signs of improvement further attempt to swim that are somewhat successful the fish will usually recover. If the attempt fails the best thing is to discard the fish rather than watch it suffer. Of course check your water chemistry and temperature for any changes that might have caused the problem. Remember this malady can attack any fish and since it is caused by factors directly related to the care the hobbyist provides it is you who holds the lives of your swimming friends in the palm of your hands.

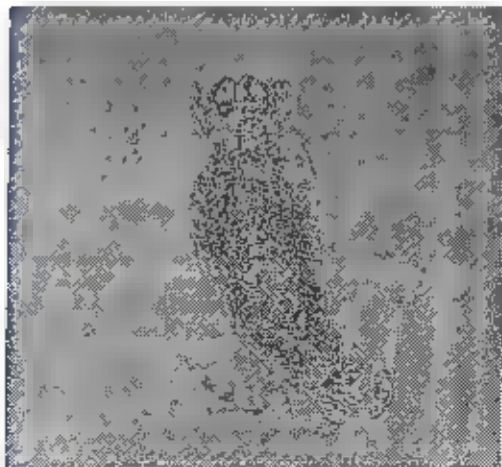
TUBERCULOSIS

This disease bears the same name as the human malady. The disease in fish however, strikes differently but usually with the same symptoms.

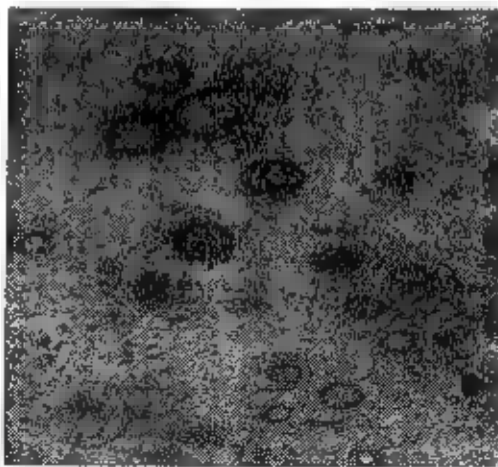
DIAGNOSIS

Tuberculosis affects fish by causing loss of appetite, sluggishness, progressive thinning and the gradual wasting away of your fish. This disease is highly contagious and can spread with little or no warning. The most effective diagnosis is just to watch your fish for

(continued on page 224 and 225)



Gill worm of the Gacnolgyidae family with low central hooks



Tubercle from an aquarium fish

any abnormal behavior like not eating, hard breathing, not schooling, coming up to the surface, or just resting on the bottom. Yellow spots appearing on the base of the caudal peduncle in

TREATMENT

Treatment of TUBERCULOSIS is very difficult. There is no sure cure known, although treatment with streptomycin and Paramino-salicylic acid have been known to be successful in the early stages of the disease. The recommended dosage for these medications is ten grams per gallon of water. The infected fish should be immediately segregated (if caught early) and placed into a "sick tank" in the hot tank the noted medications can be used. The medications should also be added to the "home tank" to help extend the spread of the disease. If the disease is not diagnosed early then the infected fish should be discarded. Of course, once the disease is observed you should run a complete water check to see if there has been a change in the water conditions since your last test. A water change is also mandated after medication is completed.

SLIMY SKIN DISEASE (Costia nocitrix, Cyclospora, demergula, Chitodanella cyprinii)

This is one disease where the name is very descriptive of the signs. At least three known organisms (noted above) are responsible for the symptoms of this disease.

DIAGNOSIS

A slimy secretion, usually milky white in appearance, becomes very apparent on the skin of the fish. The fish will lose color as the slime progresses and eventually covers the entire skin of the fish. The fish will lose color as the slime progresses and eventually covers the entire skin of the fish. The fish will not eat and breathing will become rapid.

TREATMENT

For treating only the infected fish remove to a "sick tank." Raise the tank temperature to between eighty-six and ninety degrees

Fahrenheit. At 90 the fish is acclimated in the new environment place in a "three percent salt solution" for thirty minutes. "Return to the 'sick tank'." Repeat every two days until all symptoms are gone. If this fails to effectuate a cure add two grams of quinine hydrochloride per gallon of water to the "sick tank" keeping the fish in this bath until cured. Another treatment is to add Malachite green (which is effective against Costia and Chitodanella) to the "home tank" in the solution recommended by the manufacturer. Leave the Malachite green in the tank for two days then do a water change. Repeat for two more days.

TAIL-ROT and FIN-ROT (Also called Tail or Mouth Fungus)

These are not fungal infections and should not be confused with them. The infected area will usually be a bruised area but other factors can lead to the appearance of this disease. Some other factors are those that tend to weaken a fish (poor diet, poor water quality, pH not balanced, etc.) making it more susceptible to infections of this sort.

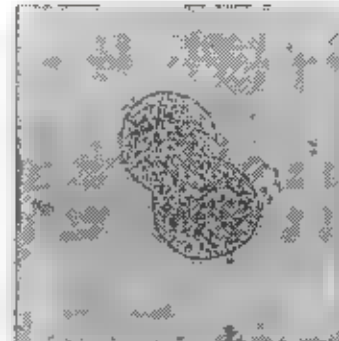
DIAGNOSIS

The earlier the disease is diagnosed, the easier it is to cure. The disease can be spotted by the whitish slime bacteria that is easily noticeable on the infected area of the fish. The slime bacteria will spread and eventually infect the entire fish if not treated early.

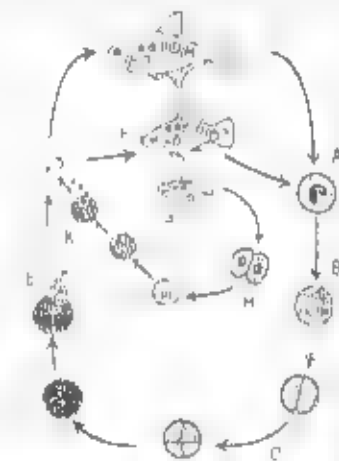
TREATMENT

The best known treatment for Tail Rot and Fin Rot is AUREOMYCIN in a solution of 250-500 mg. per gallon of water for the full aquarium. Weaker solutions recommended by some manufacturers (500 mg. per fifteen gallons of water) may remove the symptoms but the cure is in doubt. To treat an individual fish place in a quart of water and add ten mg. of Aureomycin and bathe for two hours. Then remove the fish and bathe in a strong salt solution (four tablespoons of salt per gallon) for one-half hour. Treatment of this nature will usually kill the disease without much harm.

(continued on page 224 and 225)



Ichthyophthirius multifiliis (Ich) on the tail of a fish, even after leaving the fish



THE VICIOUS ICH CYCLE

Ich is probably the most widespread and common of all fish diseases. It is variously referred to as Ich, White Spot or Blot, and Copper Disease. It is caused by the parasite Ichthyophthirius multifiliis.

(A) The white spot cyst on the fish has matured and left the host. (B) The cyst opens and the fish releases tomites. (C) The tomites develop by cell division. (D) The tomites develop into planulae. (E) The planulae infect a new fish. (F) The planulae develop into trophonts. (G) The trophonts mature and release more tomites. (H) The tomites develop into planulae. (I) The planulae infect a new fish. (J) The planulae develop into trophonts. (K) The trophonts mature and release more tomites. (L) The tomites develop into planulae. (M) The planulae infect a new fish. (N) The planulae develop into trophonts. (O) The trophonts mature and release more tomites. (P) The tomites develop into planulae. (Q) The planulae infect a new fish. (R) The planulae develop into trophonts. (S) The trophonts mature and release more tomites. (T) The tomites develop into planulae. (U) The planulae infect a new fish. (V) The planulae develop into trophonts. (W) The trophonts mature and release more tomites. 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The fish is important to remember higher temperatures must be maintained when treatment of a full tank to insure that all the disease is destroyed.

FLUKES (Gyrodactylus and Dactylogyrus)

Flukes are a parasitic worm that may affect the gills or skin of the host fish.

DIAGNOSIS

The host fish tends to lose color and keep its fins closed. Breathing becomes rapid and the fish will not eat. Flukes are contagious as they will spread throughout the tank if not caught early and controlled.

TREATMENT

Treatment for Flukes is easy. Place five drops of methylene blue (five solution) per gallon of water into the infected tank. Maintain normal temperature and aeration. Another remedy is a 100 formalin-water solution placed into the tank. Remember whenever using a formalin solution in any strength you must maintain aeration and filtration. If using a formalin solution increase temperature about two-to-four degrees from the normal temperature minimum.

BLACK SPOT DISEASE (Metacercaria of Digenea etc.)

Metacercariae are usually in newly imported fish because their life cycle includes a snail as an intermediate host. Metacercariae leave the snail and penetrate the fish's skin or are taken up in their food source.

DIAGNOSIS

If the Metacercariae is external they appear as blackish or brownish spots cysts on the fish's skin. The spots contain a small up worm inside. The fish may also develop internal and appear as muscle lumps which always become visible. The Metacercariae will also cause the fish to become very irritable, scratch and even cause death.

TREATMENT

Regrettably, there is no known cure for this malady. The best available cure is a segregation of the fish to avoid further transmission of the tank. You can try to raise the temperature of the "tank tank" and add some salt preventative. The condition can be seen externally and hence that the worm will attempt to exit the fish. Spontaneous recovery may occur after several months otherwise the fish will not recover and should be discarded.

SCALE PROTRUSION (Vibrio piscium or Bacterium epitheliorrhoeae)

The scales self-exfoliate and are shed any fish without warning.

DIAGNOSIS

The scales of the fish begin to protrude over the body of the infected fish (often giving the fish a "pine cone" look). Breathing will become rapid and the fish will tend to stay near the top of the water. Once infection has been observed the tank and all of its inhabitants should be disinfected.

TREATMENT

Treatment should begin as soon as the scales of the fish have been observed to protrude from the body of the fish. Aqueous (250 mg. per gallon of water) helps at times but is not a definite cure. In fact, to define a cure exists at this time. Disinfection of the tank must be begun immediately to ward off further harm to the remaining fish. A solution of 2-4 grains of potassium dichromate and two teaspoons of salt per gallon of water should be added. A complete water change should be done after two weeks.



Submitted by Joe Bokman

What does he see in her? She does water changes!

HOW TO CHOOSE A FILTER SYSTEM

by Jim Matheson
An Aquarist Aquarium Society

Perhaps the most important consideration when setting up an aquarium is the type of the filter system to use. Unfortunately for most beginning aquarists, filtration is one of the least understood concepts. This article will explain why a filter system is necessary, how different types of filters work, and how to choose the best for a particular use.

First, let's all hang things, give off waste products. In a lake or a stream, these wastes are carried off by the current, diluted, and are eventually "re-cycled" by bacteria and plants. In the gardeners among us have heard of fish emulsion (fish-zur). In most aquaria, the wastes cannot be carried away down stream and there is no incoming fresh water to dilute them. In order to remove the wastes from the water, it is circulated through a filter system.

A filter system consists of a filter, a container containing a filter medium which cleanses the water, connected to a pump which circulates the water. Flaboblike systems may combine several types of filters, media and pumps. It is important to understand the meaning of these terms. Some filter/pump combinations are sold as "filters" when they are, in fact, complete systems. Other companies sell separate filter modules, media and pumps to allow the aquarist to design their own system. Either way, you must have a complete system to keep the water clean.

With all the different brands and types of filters and media available, picking a filtration system can be confusing unless you understand the basics of filtration (how water is filtered). There are three methods of filtration: mechanical, chemical, and biological. All filter systems use one, or a combination of these three methods. Once you are familiar with these methods

it is easy to pick a system with the combination you need.

Mechanical filtration is the simplest method. Solid particles are trapped in a filter pad, a foam block, filter, or filter medium which is removed and rinsed out and replaced as necessary. To avoid clogging the other filter media, water is usually filtered mechanically first. This method will not remove liquid wastes (such as ammonia), coloration or odor.

Chemical filtration uses a medium such as activated carbon, zeolite or an ion-exchange resin to remove contaminants from

the water by chemically combining with them, forming harmless compounds. Carbon and zeolite should be replaced at least once a month to remain effective. Ion-exchange resins are usually effective from four to six months. Chemical filtration may be used to remove liquid wastes, coloration and odor depending on the media used.

Biological filtration works by "breaking down" the waste products in waste handling substances. Biological filter media provide a surface for bacteria to grow on. The bacteria grow and spread through the filter medium and consume the waste as the water flows through the filter. It is important to know as the bacteria break down the waste, they use oxygen. Water is saturated with dissolved oxygen after passing through a biological filter and should be oxygenated before returning to the tank.

(continued on page 28)

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should also be noted that it takes time for the bacteria to multiply and spread making the filter ineffective when first set up. Therefore, established biological filters should be disturbed as little as possible. This method slowly breaks down solid wastes but they can clog the media making it less effective. It will not remove coloration or odor.

As you can see, each of these methods has its advantages. Obviously the best filter system will include all three, circulating the water through the mechanical medium to remove solid wastes and finally through the various chemical media to remove color, odor and other contaminants. The water is then oxygenated and returned to the aquarium. The next consideration is how to circulate the water through the system.

There are two ways to circulate the water in the aquarium. One is to connect an air pump to an "air-lift" tube. As the air bubbles rise they bring water along with them. An added benefit to this method is that as the bubbles rise through the column of water they release oxygen into the water

and absorb carbon dioxide and other toxic gases. (Editor's note: studies show that bubbles do not directly contribute measurably to the oxygen level in the tank. Instead, the exchange of carbon dioxide for oxygen takes place at the tank's water surface.)

The other way to circulate water is with a water pump. These are often submersible and may have tubes or nozzles connected to direct the flow. Some pre-packed filter systems have a water pump built into the unit. Low pressure/high flow water pumps are sold as power heads to be used with undergravel filters. Better models have a flow control.

An important, but often overlooked consideration when choosing a filter system is its flow rate. The correct flow rate depends on several things, including the bio-load (the amount of waste being produced), the capacity of the aquarium and the capacity of the rest of the filter system. If your bio-load is typical (rule of thumb—one-to-two inches of fish per gallon) you will want the flow rate to be three-to-five times the capacity of the

aquarium. In other words the water will be filtered three-to-five times an hour. Therefore for a ten gallon aquarium a flow rate of thirty-to-fifty gallons per hour is sufficient.

Having examined filtration, filter media and circulation, let's look at the filters themselves. Filters are either internal or external. Internal filters include sock and sponge filters, undergravel filters and in-tank canister filters. External filters include power filters, canister filters and slides (or "wet dry") filters.

Box filters are boxes which contain float and carbon, and circulate the water on air-lift. They provide mechanical and chemical filtration. They have very low flow rate, making them excellent for hitchhiking utility they do not suck up the babies—but impractical for heavily stocked aquaria.

Sponge filters replace the sock filter's box of float and carbon with a sponge. The immediate advantage is that the sponge can be rinsed out and reused indefinitely. An added advantage is that the sponge also

(continued on page 20)

conditions throughout the year. The basic maintenance rules suggest and:

1. Change twenty percent of the water three times per week, adding an additional amount of water to cover evaporation loss.
2. Feed often and in small amounts. Do not overfeed. Three to five feedings daily should be sufficient. The diet should consist of highly nutritious food, rich in protein. Microworms may be fed twice weekly.
3. Tank population should not exceed one inch of fish per gallon of tank water.
4. Keep aquaria clean.
5. Clean filters weekly, washing the charcoal and replacing the filter media.

This brief article has considered three or four of the keys to breeding and control: the breeding concept, environmental conditions and diet. The fourth condition, we assume, is the diligence of the breeder.

acts as a biological medium allowing growth of bacteria and providing both mechanical and biological filtration. For this reason the sponge should be thoroughly rinsed out in a little of the water from the aquarium, since rinsing it under tap water kills most of the bacteria.

Undergravel filters consist of one or more perforated plates which cover the bottom of the aquarium and are covered by gravel. Each plate has an air-lift tube attached. Water is circulated down through the gravel, beneath the plate(s) and back up the air-lift tube(s). The gravel acts as a biological medium and is quickly populated with bacteria which consume the waste. The water then enters the air-lift which re-introduces oxygen to the water, and the clean, oxygenated water is returned to the aquarium at the water surface.

Once undergravel filters become established (about two weeks) they are virtually maintenance free. The main disadvantage to the undergravel system is that the aquarium gravel also acts as a mechanical medium, trapping solid wastes and uneaten food. For this reason many people use a power filter in conjunction with an undergravel for a complete filter system. Internal canisters are self-contained filter

systems. They consist of a low flow submersible water pump mounted on a filter chamber which is usually filled with foam block. These filters provide mechanical and biological filtration. In some models, the foam block is hollow, allowing the addition of a chemical filter medium.

Power filters are high flow filters which hang on the back of the aquarium. The water is circulated out of the aquarium through the filter media in the filter box, and returned to the aquarium. Because of their high flow rates, they are best suited for mechanical and chemical filtration.

Biological filtration is limited by the number of bacteria present in the media, which is determined by the amount of dissolved oxygen and space available to the bacteria. The trickle filter overcomes this problem by trickling the water down through trays of filter media which are exposed to the open air (the so called "dry" portion of the filter). This greatly increases the amount of dissolved oxygen (as the number of bacteria). The surface area, and types of media can be easily increased by adding more trays. The water falls into a sump (the "wet" portion) where it can be further filtered and then returned to the aquarium.



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BETTER COLOR IN GUPPIES

By Fred Sammler
Central New York Aquarium Society

Breeding guppies for color can be accomplished while increasing or maintaining size and vigor. Careful selection is the key. Always start with good fish from a reliable breeder who maintains test lines. Remember that optimum living conditions and proper diet are vital to the proper breeding and maintenance of good fish.

I have developed and used the following procedure for many years. It is a concept in breeding, with the flexibility required for color control. It allows for new blood to be added and aids in the maintenance of good vigor. Genetics, heredity, recombinations and control by selection are the basic factors. True, there are many possible recombinations. However, this method does work. I have some strains that have

been worked on with this method for ten years and more.

Before any cross breeding of fish can be started, the color lines of the guppies must be established. To establish color lines it is best to line breed, for interbreeding can result in hybrids. If the fish to which you cross also happens to be inbred, blue strains and red strains should generally be line bred for three generations to establish color while green strains require but two generations of breeding green to green for color stabilization. However, some variation in body color may still be expected when crossing.

Remember to preserve virgin females from each cross for use if mutation occurs or for use in further crossing. When breeding is performed properly, the same variety and strain should be consistently good. A good breeder maintains his fish under optimum

ONE MAN'S OPINION

By Phil Bryant
Gateway Guppy Associates
Ambrogen From Missouri Aquarium Society

Was I too easily forget our early problems and all the help we received from the more advanced hobbyists (without which I would not have advanced as far in the hobby as I have). That is the reason for my great concern. The knowledge that is stored in the minds of our elder members, if we could unlock their minds, and forget pride and embarrassment.

I wonder if the real reason so few have questions every time we call for questions is because they are just a little bashful and afraid they may be embarrassed by asking stupid questions. Next time a "trap session" is called, write your question, then read it clearly and expect someone to question, just to find a solution. And no matter what you feel, stand tall and be counted so that perhaps a younger member may be encouraged to speak.

QUESTION: What do you look for in a male guppy?

ANSWER: I am looking for show guppies, I first pick the largest guppies and place them in a tank of their own. Then begin culling, lack of color, poor dorsal, bad deportment, poor caudal shape, bad proportion and ratio (one to one body to caudal, three to one in dorsal) sixty percent angle of caudal.

If I want breeding stock, I use a slightly different method. I want color first, proportion and ratio second, size third. Now it is quite possible to have all of these items in one guppy, but not in twenty-five or thirty. So it is extremely important to cull your tanks until you have succeeded in narrowing your selection to one or possibly two of your very best.

In the meantime, if you have not separated the females from the males it will be very difficult to be selective. I would venture to say impossible. The main reason for

separating males and females early is to insure good breeding (virgin) females when you have selected your best male. Because if the female is bearing sperm from another male, you have just lost six months' work. It will take you that long to discover that the brood of young does not resemble the male you have selected at all.

QUESTION: What kinds of foods do guppies eat?

ANSWER: Guppies have very insatiable appetites. They will eat almost anything and at anytime you wish to feed them, once kept a record of feeding one tank of forty six-month old guppies thirty-six times in a ten-hour day and they never refused to eat the food placed in their tank. Note: I would not try this yourself until you find out a little more on the diet of guppies. I relate nine different foods so as not to constipate the guppies.

Look for foods high in protein, forty to fifty percent is plenty. Dry foods are cheapened as much as live foods. Frozen foods are greeted with zeal and vigor, a balanced diet is important and should be uppermost in your minds. Remember the guppies must turn the foods which into protein before they can grow. A monotonous diet will cause trouble. Your guppies will appear listless, fail to mate with your females, die at a very young age, easily contract any of numerous diseases and suffer a breakdown in body structure.

Feeding lightly but as often as possible helps build strong bodies for male guppies to carry large caudals. A large caudal on a small body tends to bend his spine so that he appears to be swimming vertically.

QUESTION: What size aquarium is best for guppies for growth?

ANSWER: Here we must know (1) how many guppies (2) the size of the guppies (3) the size of the aquarium. These are relevant questions, use good judgment as to when to move guppies into larger quarters. When guppies are young it is best to have them confined to small

quarters so they do not have to look for food. A five-gallon tank is sufficient. Keep a good exchange of water, perform partial water changes twice a week, about ten to twenty percent. Watch for filled bellies. Shallow caudals tell us we are not feeding enough.

We are going to assume in the following steps that growth is proceeding at a normal rate. When about two-months old transfer to a ten-gallon tank for by this time your guppies will need more room for exercising. Feeding a little heavier will tax your filter so be sure to change it at least once a week, and keep changing water. Next, I like a deep aquarium for body development, a twenty-gallon high is an excellent aquarium for all purposes.

At six months of age a twenty-gallon tank is the best tank for the completion of your guppies. This shallow aquarium releases some of the pressure from body growth and allows the caudal to catch up. I have used these methods and they work best for me.

QUESTION: My guppies caudals split, tear and spin.

ANSWER: This problem is one that has troubled guppy men for years. We all have a few different ideas, so I will tell you my ideas. Splitting of caudals is due to inbreeding, bad water conditions and too much water being changed. Yes, and you can change too much water at one time. This is a major cause of caudals being burned. It is a little like call rot, but is actually caused by a heavy change of fresh water disturbing the mucous protection on the caudal.

Inbreeding will weaken the genes of the guppies, causing the caudal region to become weak, subject to any type of destruction that might overtake it. The best thing is to introduce new blood. Prefer using new females if I have good males to select, otherwise new males to your females.

Water conditions can be harmful to caudals. Look for a cloudy condition in your tank. Many guppy men, as well as myself, believe a dirty aquarium is a very good cause of caudals splitting. Remedy? Try eliminating the cause of the bacteria build-up, usually caused by over-feeding, over-crowding, bad filtration, heavily just pure neglect. Nothing in the world can beat good tank maintenance.

SOME OF THIS, SOME OF THAT

By Phil Bryant, Judging Board Chairman
Brian Shabel, Former Judging Board Chairman
International Fancy Guppy Association

Question: I have heard that most guppy breeders with large fishroom setups (one hundred tanks or more) use a mechanical water changing system (Teel pump). Can you explain how this system is operated and what its benefits are, if any?

Richard W. Fleming

PAUL GORSKI: The pump is a Teel, a marine, self-priming impeller water pump. Use of this pump just makes siphoning water from tanks much faster than the "hose and bucket" method.

Question: What is the reason that most guppy breeders recommend using beef heart in their paste food recipes instead of good, old beef liver which is much easier to locate in the market?

Nick Visser

PAUL GORSKI: Beef heart is not as messy as paste food as liver and, therefore will not pollute the tank as easily. The high protein value of both are excellent for your fish.

Question: Are there other species of brine shrimp that hatch larger than the standard shrimp most guppy breeders use? If so, my older fish would have it much easier at mealtime. By hatching larger, I mean the size of the shrimp not the size of the hatch (yield)?

Honda Evans

PAUL GORSKI: I only know that the great Salt Lake shrimp are larger than the San Francisco brand. To the best of my knowledge, there is absolutely no difference in nutritional value between them.

Question: What, if anything, would you like to see changed or different about the International Fancy Guppy

Association judging rules and standards?

Richard W. Fleming

PAUL GORSKI: Our judging standards have evolved from years of trial and error and are in pretty good shape right now. As long as we remain flexible and prepared to improve and change as the bench demands, we will be okay.

Question: Is there anyway to prevent a pregnant female about ready to "drop" from dying? I have heard of livebearers being egg bound.

John E. Carruth

PAUL GORSKI: I can only suggest that such a heavy female not be changed to a birthing tank. Unfortunately, the shock caused by changing conditions, from one tank to another, could be a contributing factor. Females sometimes do become egg bound and I have heard that the addition of Epsom salt sometimes helps. Add a teaspoon or two to five gallons of tank water. It reputedly softens tissues and may allow egg passage.

Question: How did you get started working with guppies?

John Caldwell

PAUL GORSKI: My start in breeding fancy guppies was purely the beauty of the fish and it is this feature that keeps me active in the hobby. With the many moves my family has made, it takes a special attention (love) for the little critter or else I would not build new fish rooms time and time again.

Question: What color classes on the show bench do you think could be greatly improved through better breeding?

Elaine Poy

PAUL GORSKI: Prior to the South Jersey Guppy Group show this year, I would have said the multi-colored strains, but they were exceptional at this show. In any given season you find swings in the quality of any color class. Remember just a few

years ago, it was suggested to have a range color class because most reds were indeed orange in color. That time I think now the reds have popped back in. www.fgaa at today's shows.

Question: In your opinion, what is the optimum age to show male guppies? What is the optimum age to show female guppies? Is it necessary for female guppies to be pregnant on the show bench?

Richard W. Fleming

PAUL GORSKI: Show conditions, size and color dictate when to show a fish, male or female, not their ages. No, do not believe it to be a requirement for a female guppy to be pregnant on the show bench to win. In fact, sometimes an advanced gravid condition can be detrimental for showing (shape). A female that is pregnant, but not blown up is certainly pleasing to the eye.

Question: Is there any wisdom that you wish you had learned EARLIER in your guppy breeding routine?

John Caldwell

PAUL GORSKI: Yes! Never quit a winner. If a procedure works well for you, then do not change it just because you hear or see about some other routine that looks or sounds more appealing.

Question: How much opportunity do you believe there is for hobbyists today to develop strains of guppies that are unique in their coloring, unlike any so far developed?

Elaine Poy

PAUL GORSKI: The opportunities are endless, but just talking about them will not get the job done. Do the research, make the effort.

Question: At what temperature do you raise your young guppy fry? At what temperature do you maintain your adult guppies that you are readying for show?

Richard W. Fleming

PAUL GORSKI: Normally I maintain my guppy fry at eighty degrees Fahrenheit plus, while adult fish are maintained at a cooler temperature to prolong their mature show condition.

MESSAGE FROM THE PRESIDENT

Dear Members

Many thanks and congratulations to the members of the Gateway Guppy Association for hosting an enjoyable meeting show. Everyone at the show seems to have a great time. The meeting was efficient and the judging went without a hitch. There was a greater variety of fish on the bench than I have seen in the past. Some of the classes that have traditionally been weaker are making a comeback. Many of the fish in these less popular classes can do quite well, particularly in the new classes. The coloration of the females was outstanding.

The shows represent the showcase of

our hobby and our opportunity to display the fish to the rest of the world. They can be a great learning experience to the beginning hobbyist. I would like to see more organized activities at the shows directed at improving the hobby. Seminars held Saturday evening or Sunday morning could prove very successful. They would offer a place for members to get information from the top breeders. Topics could range from beginning breeding, suitable to the genetics of raising a particular color. This would give an excellent forum for exchange of ideas and techniques on a one-to-one basis. This kind of formal exchange of information in one area we need to concentrate our efforts.

Until Next Month,

Jim Alderson

International Fancy Guppy Association Officers

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OFFICIAL INTERNATIONAL FANCY GUPPY ASSOCIATION ACCUMULATIVE AWARD POINT TOTALS THROUGH MAY 1, 1994

DELTA CLASSES

ALBINO	400	ADG BICOLORED	BLACK
1. Gary Mousaoui 2,100	1. Stephen Kowalek 640	1. Steve Webb 3,420	1. Tom & Pat Allen 3,400
2. Gary Mousaoui 1,800	2. Thomas Buehler 440	2. James Magrison 700	2. Tom & Pat Allen 3,400
3. Gary Mousaoui 1,600	3. Gary Mousaoui 440	3. Michael Bower 780	3. Tom & Pat Allen 3,400
4. Gary Mousaoui 1,400	4. Gary Mousaoui 440	4. Gary Mousaoui 1,600	4. Tom & Pat Allen 3,400

BLUE	BLUE/GREEN BICOLORED	BIRCH	BROWN
1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100
2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800
3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600
4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400

GREEN	HALF-BLACK BICOLORED	HALF-BLACK BICOLORED	HALF-BLACK BICOLORED
1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100
2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800
3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600
4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400

HALF-BLACK BICOLORED	HALF-BLACK BICOLORED	HALF-BLACK BICOLORED	HALF-BLACK BICOLORED
1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100
2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800
3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600
4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400

PURPLE	RED	RED BICOLORED	SHARKFIN BICOLORED
1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100
2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800
3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600
4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400

SHARKFIN BICOLORED	SHARKFIN BICOLORED	SHARKFIN BICOLORED	SHARKFIN BICOLORED
1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100
2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800
3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600
4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400

SHARKFIN BICOLORED	SHARKFIN BICOLORED	SHARKFIN BICOLORED	SHARKFIN BICOLORED
1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100
2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800
3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600
4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400

SHARKFIN BICOLORED	SHARKFIN BICOLORED	SHARKFIN BICOLORED	SHARKFIN BICOLORED
1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100
2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800
3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600
4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400

SHARKFIN BICOLORED	SHARKFIN BICOLORED	SHARKFIN BICOLORED	SHARKFIN BICOLORED
1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100
2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800
3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600
4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400

SHARKFIN BICOLORED	SHARKFIN BICOLORED	SHARKFIN BICOLORED	SHARKFIN BICOLORED
1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100
2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800
3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600
4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400

SHARKFIN BICOLORED	SHARKFIN BICOLORED	SHARKFIN BICOLORED	SHARKFIN BICOLORED
1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100
2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800
3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600
4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400

GRAND OVERALL

MALE

1. Gary Mousaoui 1,120	1. Gary Mousaoui 1,120
2. Gary Mousaoui 1,120	2. Gary Mousaoui 1,120
3. Gary Mousaoui 1,120	3. Gary Mousaoui 1,120
4. Gary Mousaoui 1,120	4. Gary Mousaoui 1,120
5. Gary Mousaoui 1,120	5. Gary Mousaoui 1,120
6. Gary Mousaoui 1,120	6. Gary Mousaoui 1,120
7. Gary Mousaoui 1,120	7. Gary Mousaoui 1,120
8. Gary Mousaoui 1,120	8. Gary Mousaoui 1,120
9. Gary Mousaoui 1,120	9. Gary Mousaoui 1,120
10. Gary Mousaoui 1,120	10. Gary Mousaoui 1,120

GRAND OVERALL

FEMALE

1. Gary Mousaoui 1,120	1. Gary Mousaoui 1,120
2. Gary Mousaoui 1,120	2. Gary Mousaoui 1,120
3. Gary Mousaoui 1,120	3. Gary Mousaoui 1,120
4. Gary Mousaoui 1,120	4. Gary Mousaoui 1,120
5. Gary Mousaoui 1,120	5. Gary Mousaoui 1,120
6. Gary Mousaoui 1,120	6. Gary Mousaoui 1,120
7. Gary Mousaoui 1,120	7. Gary Mousaoui 1,120
8. Gary Mousaoui 1,120	8. Gary Mousaoui 1,120
9. Gary Mousaoui 1,120	9. Gary Mousaoui 1,120
10. Gary Mousaoui 1,120	10. Gary Mousaoui 1,120

GRAND OVERALL

SHARKFIN MALE

1. Gary Mousaoui 1,120	1. Gary Mousaoui 1,120
2. Gary Mousaoui 1,120	2. Gary Mousaoui 1,120
3. Gary Mousaoui 1,120	3. Gary Mousaoui 1,120
4. Gary Mousaoui 1,120	4. Gary Mousaoui 1,120
5. Gary Mousaoui 1,120	5. Gary Mousaoui 1,120
6. Gary Mousaoui 1,120	6. Gary Mousaoui 1,120
7. Gary Mousaoui 1,120	7. Gary Mousaoui 1,120
8. Gary Mousaoui 1,120	8. Gary Mousaoui 1,120
9. Gary Mousaoui 1,120	9. Gary Mousaoui 1,120
10. Gary Mousaoui 1,120	10. Gary Mousaoui 1,120

GRAND OVERALL

SHARKFIN FEMALE

1. Gary Mousaoui 1,120	1. Gary Mousaoui 1,120
2. Gary Mousaoui 1,120	2. Gary Mousaoui 1,120
3. Gary Mousaoui 1,120	3. Gary Mousaoui 1,120
4. Gary Mousaoui 1,120	4. Gary Mousaoui 1,120
5. Gary Mousaoui 1,120	5. Gary Mousaoui 1,120
6. Gary Mousaoui 1,120	6. Gary Mousaoui 1,120
7. Gary Mousaoui 1,120	7. Gary Mousaoui 1,120
8. Gary Mousaoui 1,120	8. Gary Mousaoui 1,120
9. Gary Mousaoui 1,120	9. Gary Mousaoui 1,120
10. Gary Mousaoui 1,120	10. Gary Mousaoui 1,120

GRAND OVERALL

NOVICE OVERALL

1. Gary Mousaoui 1,120	1. Gary Mousaoui 1,120
2. Gary Mousaoui 1,120	2. Gary Mousaoui 1,120
3. Gary Mousaoui 1,120	3. Gary Mousaoui 1,120
4. Gary Mousaoui 1,120	4. Gary Mousaoui 1,120
5. Gary Mousaoui 1,120	5. Gary Mousaoui 1,120
6. Gary Mousaoui 1,120	6. Gary Mousaoui 1,120
7. Gary Mousaoui 1,120	7. Gary Mousaoui 1,120
8. Gary Mousaoui 1,120	8. Gary Mousaoui 1,120
9. Gary Mousaoui 1,120	9. Gary Mousaoui 1,120
10. Gary Mousaoui 1,120	10. Gary Mousaoui 1,120

VEIL CLASSES

BIRD/EYE COLORED	HALF-BLACK	SHARKFIN	SHARKFIN BICOLORED	SHARKFIN BICOLORED
1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100
2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800
3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600
4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400

BIRD/EYE COLORED	HALF-BLACK	SHARKFIN	SHARKFIN BICOLORED	SHARKFIN BICOLORED
1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100
2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800
3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600
4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400

BIRD/EYE COLORED	HALF-BLACK	SHARKFIN	SHARKFIN BICOLORED	SHARKFIN BICOLORED
1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100
2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800
3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600
4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400

BIRD/EYE COLORED	HALF-BLACK	SHARKFIN	SHARKFIN BICOLORED	SHARKFIN BICOLORED
1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100	1. Gary Mousaoui 2,100
2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800	2. Gary Mousaoui 1,800
3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600	3. Gary Mousaoui 1,600
4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400	4. Gary Mousaoui 1,400



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RAISING FANCY GUPPIES FOR SHOW

By Mike H.
Pan Pacific Guppy Association
Author's Photo "Guppy" Gambis

If you want to get into the fun of showing your guppies next season, now is the time to start. The guppy show season begins in early Spring, and in order to be ready for it with show-size fish, guppy breeders all across the country set up their brood fish in the Summer to give them plenty of time to grow.

Showing your guppies can be one of the most rewarding parts of the hobby, both because of the enthusiastic camaraderie of guppy hobbyists and the thrill that comes from seeing your fish claim one of the coveted trophies. But, whether you are intrigued with showing fish or not, a lot can be learned from the way different breeders go about producing and raising fish for show. Over the next few months we will follow the process along step by step, from setting up breeders to collecting trophies.

Although many of the major guppy breeders have the advantage of large fish rooms with many tanks of guppies to choose from, it is still possible to produce a winner in limited tank space, after all, it only takes one fish to win!

Breeding guppies for show is often a whole different ball game from the type of line breeding or inbreeding programs used for developing or maintaining prize strains. While many major breeders with well-established strains do continue to use the line-breeding process to produce show fish, other breeding techniques are also brought into play. Techniques that are "no-no's" for perpetuating pure strains but which can produce fabulous fish for show purposes.

Of the breeders that do use line-breeding to produce at least some of their show fish, many try to time their line crosses to take

advantage of the extra "dink" of hybrid vigor to maximize size and hardness. This is often all that is needed to produce winners from a top strain. It also can give the necessary boost in size to color strains that have a general tendency to smaller size, such as yellow half-black yellows, blues, etc.

One of the most successful alternative methods of breeding fish for show purposes is controlled outcrossing. By "controlled" we mean that two unrelated strains, known to be compatible, are continually line bred for purity of their traits in the usual line-breeding, or inbreeding, fashion. Then, to produce exceptional show fish, these two strains are crossed to each other to get hybrids of superior quality. Since these hybrids represent a genetic mix up they are not used for further breeding. They are for show only!

Probably the majority of multi-color guppies seen in shows are bred in this way as it is hard to keep the colors and patterns bright and clear when multi's are line bred. Many of the reds are also bred this way for show purposes as it tends to yield larger fish with clearer red color and less of the smoky dullness, or spotting, that so easily creeps into red strains. But it is also used to give hybrid vigor to monochromes such as blacks, blues, greens, etc.

The trick, of course, is to locate two unrelated strains that are compatible enough to consistently produce superb hybrids when crossed. It can take a great deal of time and experimentation to locate the proper two strains for this type of breeding, and it is understandable that guppy breeders that do find two such strains guard them carefully.

Sometimes random outcrossing of any two related strains will give good show fish, but the odds are about the same as pulling the handle of a slot machine. You might win a little, you might hit a jackpot, or you might

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PAN PACIFIC GUPPY ASSOCIATION MEETING SCHEDULE

JULY 10, 1994
WEST QUINA JAMES BANQUET ROOM
875 South Glendale Avenue West Covina
818 963-3535

DIRECTIONS: Santa Monica Freeway east (10) to San Bernardino Freeway east (10) to Vincent Avenue/Glendale Avenue exit. Turn right off freeway ramp onto Vincent Avenue. Vincent Avenue to "Borwick Avenue" and turn right into parking lot of West Covina. Drive.

know the whole works.

No matter what your method of breeding, the selection of brood fish to produce your potential show fish should be based on traits and colors as described in the IFGA show standards, the judging standards used in all large guppy specialty shows. If you are thinking of showing it would be well to send for the International Fancy Guppy Association Judging Book (International Fancy Guppy Association, 1400 SW 124th Avenue, Pembroke Pines, Florida 33027). In it you will find accurate descriptions of the requirements for all color classes, the point system for general conformation and color judging rules, how to go about entering a guppy show and much more.

(continued on page twenty-nine)

valuable information.

When it comes to picking out breeders which, hopefully, will produce fish with all the right things going for them, a knowledge about guppy genetics can be of immediate help. Although many breeders say that they select their brood fish by the "eyeball" method, they usually base their "eyeballing" on experience and knowledge as to how specific traits have been previously carried in their strains. A sort of unacknowledged use of genetics. If yours is a fairly new strain, begin by selecting breeders by visual selection, but keep records of some sort so that you can learn as much as possible about the way in which certain traits are handed down to offspring. The more you learn about your strain, the better you will be able to choose the best potential brood stock.

Most breeders set their brood fish up in separate aquariums, usually five or ten gallon tanks, depending on the number of fish. Probably the most common breeding set-up will contain one or two choice males

with a "flock" of females. Breeders I've seen these brooder fish are given the very best VIP treatment as to water quality, cleanliness, food, etc.

As the time to drop fry approaches, nursery tanks are set up so that each female can drop her litter in a separate tank. Not only do fish all of the same age grow better and faster, but, at least for the first time around, you want to keep litters separate so you can discover which females are throwing the best show fish. These are the females that you will use to drop later litters. It is so that you have a continuing supply of "show" fish coming up throughout the entire show season. If you do not have the tanks necessary to save a litter a month, you will have to rely more strongly on some of the tricks we will go into to keep fish in their show prime longer.

With breeding tanks set up now, fry will be just beginning to appear by next month when we will go into the how-to's of the vital first month which can make or break the chances of a show guppy.

MONTHLY BOWL SHOW RESULTS

Club members are encouraged to bring guppies to our monthly meetings to afford themselves the opportunity to have their "little creations" critiqued by a member of the International Fancy Guppy Association Judging Board. What better way to learn if you are on the right track to win a color class than to have your guppies reviewed on a monthly basis by an IFGA judge?

The results of the May 1994 bowl show

MALE

1. Davidsen Tail .Red Delta
2. Craig Smith .Red Ribbon Delta
3. Craig Smith .Blue/Green Ribbon Delta
4. Davidsen Tail .Blue Delta

FEMALE

1. Davidsen Tail .Half-Black Red
2. Craig Smith .Half-Black AQ

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GUPPY ROUNDTABLE

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GUPPY ROUNDTABLE

THE OFFICIAL MONTHLY PUBLICATION OF THE

INTERNATIONAL FANCY GUPPY ASSOCIATION

VOLUME III ISSUE II

PUBLISHED BY THE PAN PACIFIC GUPPY ASSOCIATION

AUGUST 1984

KEEPING RECORDS GUPPY VARIABLES: PART V

By Stephen Kessler
Big Apple Guppy Club
Brooklyn Guppy Club
East Coast Guppy Association
South Jersey Guppy Group

NOVICE TO NOVICE



He looked bigger at home

Submitted by Tom Hadenwiler

In my last article I mentioned the importance of keeping accurate records. There are many breeders who may keep records as well as those who never do. I have spoken to some top breeders who tell me they keep all their breeding information in their head. Well, if you ever try to pick their brains you will probably get one response on Tuesday and a completely different reply to the same question on the following Saturday. You see, most answers to difficult questions regarding breeding techniques cannot be answered off the top of one's head. They must be backed up by fact.

In order to prove a fact you need proof. By keeping an account of all lineage of your breeding stock you will have a full understanding of what is going on with your breeding program. I have been using the same method of maintaining my records since becoming involved with breeding show guppies. I use Midge Hill's method of record keeping which was published in an old issue of the IFGA Bulletin. With a few changes, and using a small book instead of index cards, I have been able to keep between three to five years of breeding setups in each book.

There are several very important entries

FUNGUS

By Louis Palmer
Westside Guppy Association

The fungus that is often encountered in the aquarium, both fresh and marine, is *Saprolegnia*. It reproduces by forming tiny spores which survive drying and can be spread far and wide by the wind.

The fungus attacks dead or dying tissue. Fish with wounds or other injuries are prone to suffer from this disease. The visible symptoms are growths with a fuzzy appearance. As the fungus spreads, it causes the healthy tissue surrounding the wound to die off as well. Large growths should be removed with tweezers and the area treated (dabbed) with hydrogen peroxide (3%). The disease rarely spreads

to uninjured fish, but will rapidly spread to fish with a wound or open sore of any kind. Several drugs will prevent the spread of the disease and may be used in the fresh water aquarium. Some of the more effective are Methylen Blue, any of the Furan drugs (Furazone, Furan II, Furazone Green), Acridin compounds, and MAROXY (a stabilized chlorine compound).

After recovery is complete, a partial water change should be done. TETRA MEDICATED FOOD (Bacterial & Fungal) should be fed in conjunction with external medications. Always pay particular attention to vitamin supplementation as well as trace elements during and after any disease outbreak.

INSIDE THIS ISSUE

4

CHERCHEZ LA FEMME

By Robert Fisher

Searcher of the correct parents for the next brood is essential to maintain an existing guppy strain.

7

THE FISH ROOM: AIR AND ELECTRONICS

By Peter Jorda

Second installment of step-by-step guide to convert a room, garage or basement into a fish room.

10

FISH SUFFER STRESS, WHY?

By Gary L. Ramsey

Some questions regard critical life functions such as growth and reproduction are stressed.

13

NOTES ON ACTIVATED CARBON

By Laura Palmer

A brief article regarding various aspects of activated carbon found at many guppy breeders' tanks.

14

HORMONES! THEIR USE AND PITFALLS

By William Harrington

Is there another reason besides the way guppies are fed why some are pink and some are blue?

16

RAISING FANCY GUPPIES

By Jack Evans

After asking pet shops where to buy three puppies, he found a breeder who was raising shows.

18

WHAT I GET FROM BEING A MEMBER OF A GUPPY CLUB

By Richard W. Fawcett

Find out why almost all of his friends think he is crazy for dedicating a room to fancy guppy tanks.

20

A TIDBIT OF GUPPY INFORMATION

By Elizabeth G. McKinstry

Find out how to develop a new color strain for common guppy fish, perhaps will not be common.

21

SOME OF THIS, SOME OF THAT

By Paul Oswald and Stan Stuebel

Another batch of thought-provoking questions and thoughtful answers.

23

ACCUMULATIVE POINT TOTALS

By Dan C. Whitmer

Accumulative point totals for 1983-1984 show season through May 1, 1984.

24

COLUMBUS OPEN GUPPY SPECIALISTS SHOW RESULTS

By Rusty Winder

Results from last show of 1983-1984 show season hosted by Columbus Ohio Guppy Specialists.

26

NEW ENGLAND FANCY GUPPY ASSOCIATION SHOW INFORMATION

By Marilyn Johnson

Complete information for New England Fancy Guppy Association show August 27-28, 1984.

28

GUPPY ASSOCIATES INTERNATIONAL OF CHICAGO SHOW INFORMATION

By Frank Barta

Information for Guppy Associates International of Chicago show September 17-18, 1984.

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The Guppy Roundtable is published monthly
except January by
Pan Pacific Guppy Association
Business offices located at
11003 Culver Boulevard
Culver City, California 90230

Application to Mail at Second Class Postage
Rates is pending at Culver City, California.

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For subscription information contact:
Pan Pacific Guppy Association
3619 Montrose Avenue B
Los Angeles, California 90034-6843

Subscriptions are \$20.00 per year for eleven issues. Foreign subscribers please add \$8.00 per year. Please use international money orders only. Allowable to eight weeks for delivery of first issue.

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GUPPY ROUNDTABLE

needed to maintain your records. Let's say for example you acquire a trio of blues from John Doe. If you are lucky enough to know when these fish were born, whether or not they are siblings and what generation they are you will be way ahead of the game. Usually this information is not offered unless you request it. Sometimes even if you request the information there is no guarantee that the breeder will disclose the information requested.

So, let us assume we know absolutely nothing about this trio of fish other than that they are of blue delta stock. Carefully look over each fish and take note as to their overall color. Does the dorsal match the caudal? What is the body color of the females? All characteristics should be noted.

Now we will enter the necessary information in our record book. I use a book that is a small composition type book. Remove the top four lines from every page with a good sharp razor blade. With this done, you will have an area on the inside front and back cover where you will set up a section of columns. The columns are as follows.

By making the columns on the inside of the

#ID	M/F	COLOR VARIETY	GEN	TYPE OF CROSS	PARENTS	DATE BORN	LITTERS PRODUCED	BREEDERS PRODUCED	DATE SET UP
-----	-----	---------------	-----	---------------	---------	-----------	------------------	-------------------	-------------

front and back covers it will appear above each page of your book. Now transfer the lines from each column so they run down to the bottom of each page. Allow three or four lines per entry. You now have a ledger type book for your records.

Now to make your first entry. In the column for "#ID" enter "B1" since this will be your first entry. Under "Male/Females" enter "1" male and 2 females" as this are generally used in guppy breeding. Under generation "GEN" if known enter "F1" or "unknown". The rest is self explanatory. The "Litters Produced" and "Breeder's Produced" columns will be updated when necessary.

The following graph is how your first

#ID	M/F	COLOR VARIETY	GEN	TYPE OF CROSS	PARENTS	DATE BORN	LITTERS PRODUCED	BREEDERS PRODUCED	DATE SET UP
B1	1M	blue delta	F1	SIB	JOHN DOE	JAN 1			1/19/83
B1	2F	blue delta	F1	SIB	JOHN DOE	JAN 1			1/19/83

recorded entry should look. Now that you have recorded your first breeding setup, let's jump ahead into the future. If your trio had young on 3/5/83 this information should be recorded.

This batch of babies should be kept in their own tank and they should be identified as "B1 (3/5/83)" and should be so noted on their tank. I use a strip of tape that I place on each tank and use a permanent marker to write the information. This number of identification is fool proof. Even if you have a drop from the other female from the same "B1" setup on the same day, all you have to do is give that batch of young the next day's date. When the time comes to sex females, approximately three-to-four weeks, this same label is placed on the tank that will hold the virgin females.

The next step, within the next few months, will be to set up new breeders. Let's select a sibling (brother to sister) setup. We will be using a male and two females from the

"B1 (3/5/83)" and breeding to females from the tank labeled "B1 (3/5/83)". For the sake of this article, we will call this setup line breeding, and give it the next "#ID" which will be "B2".

Now let's see how our entries look in our record book (see large graph below).

As you see, I use the next "#ID" in numerical order. You can, as I do, keep all breeder setups, regardless of what color strain, in the same record book. With this system in place for several years, all you have to do to look up the lineage of any offspring is to take out your book and turn some pages.

As I said earlier in the article, I have been using my current record book since 1980, average one hundred breeding setups per year. Each page lists on the average of nine-to-ten setups. I have tried to make this system even simpler by using my personal computer, but even with all of the latest software programs and spreadsheets, find my little record book method is much easier, faster and more efficient.

Well, good luck,

Always remember guppy breeding is not a "hit or miss" proposition, but rather quite scientific.

#ID	M/F	COLOR VARIETY	GEN	TYPE OF CROSS	PARENTS	DATE BORN	LITTERS PRODUCED	BREEDERS PRODUCED	DATE SET UP
B1	1M	blue delta	F1	SIB	JOHN DOE	JAN 1	3/5/83 3/8/83	B2 B3	4/19/83
B1	2F	blue delta	F1	SAME	SAME	SAME			SAME
B2	1M	blue delta	F2	SIB	B1	3/5/83			7/19/83
B2	2F	blue delta	F2	SAME	SAME	SAME			
B3	1M	blue delta	F2	LINE	B1	3/5/83			7/19/83
B3	2F	blue delta	F2	SAME	B1	3/5/83			

CHERCHEZ LA FEMME.!!!!

By Robert Fisher
Citrus Aquarium Society

Perhaps one of the most difficult problems which faces any Guppy Hobbyist, is choosing the right breeders for future generations. Selection of the correct parents for the next brood is essential to maintain an existing strain, or to improve and build up a new strain. Now this is not an easy task for even an expert guppy breeder, but for a newcomer or novice it is difficult and very often a hit or miss proposition. Many fish having potentially good breeding qualities have been overlooked by beginners simply because they had never been instructed properly what to look for among their young breeding stock in order to improve their strains.

Now, I don't believe there is any magical formula to follow which is sure to spell out success time after time, but I do think a few pointers on the subject will be of help to those who may have doubts concerning their choice.

When I started in breeding guppies a few years ago, I was completely in the dark about this subject, and over the course of several generations lost several promising strains of fish by degeneration—just did not know what to do to preserve color, size, or tail spread, so instead of improving, my strains of fish gradually deteriorated until there was nothing left worth keeping. This sad experience has happened to most of us at some time or other and when we look back now we are able to see the mistakes we made in the past. My own mistakes were in breeding for color alone, giving absolutely no thought for size or shape, consequently soon had tanks full of beautifully colored midguts.

Nobody can accurately predict the outcome of a specific mating, but if we know the recent past history of our strain, we can have a fair idea what we may expect. All other factors being equal, we get our brood of fry, raise them up as best we know how

and all back to anxiously await the outcome. Time is the biggest factor, because when we have committed ourselves to breed a specific pair of fish it usually takes about three to four months before we can have some idea concerning the outcome. If our choice of breeders has been wrong we have to go back and start all over again, but as most people find out, it is often too late by that time and the original breeding stock is

Selection of the correct parents for the next brood is essential to maintain an existing guppy strain.

no longer around. So all this points up the importance of not only being sure we have made the right choice of breeders but also that we have used enough pairs to guarantee several batches of young from which to choose the best.

In the choice of our male breeders, we obviously pick out the male or males whose total qualities rate highest on the scale, for instance, we choose males having the largest body size, widest tails, heaviest dorsals, brightest and flashiest colors and most vigorous deportment. The choice is not too difficult as these fish will stand out among the rest, the qualities we are looking for may exhibit themselves in only one fish or in several, without question these are the fish which should be carefully preserved for breeding purposes. Each and every male fish in our brood be carefully examined for minor defects, then their pros and cons carefully assessed until the choice is narrowed down to the few fish having most promise, believe strict adherence to this general rule is mandatory.

Guppies have a wonderful habit of mutating and statistics show that as many as ten percent of all guppies are mutants, that is, there has been some slight change in

the basic gene structure which has or will produce some new feature or characteristic in our fish. This may show up as a distinctly visible change, but very often the mutation is invisible and therefore goes undetected for some considerable time. It should be remembered that ninety-five percent of all mutations are detrimental and indicate degeneration of the strain, therefore we must constantly watch for the five percent beneficial mutations which are able to improve our strains. In round figures this means that for every one hundred guppies there will be about ten mutants, nine of which will be the wrong kind, leaving only one fish as the beneficial mutant. These other mutants should never be allowed to become breeders, for they will only pass on their defects to the next generation and finally destroy the strain.

A beneficial mutation may be the sudden appearance of a fish with exceptional qualities, a huge body, a much wider tail, or a new color pattern, in fact any new feature which makes it better than its parents or brothers. I am constantly on the watch for these fish and if they promise to improve a strain, have no hesitation in using them for breeders. Thus in the choice of breeders, OBSERVATION is one of the most important factors. I might say right here, if in doubt, wait a while longer before breeding, even as much as a month until you are sure you have the right male fish. Choosing the very best male of a batch indicates his potential contribution to future generations. He is the living custodian of the gene package which produced him and is therefore capable of transmitting this same gene package to the young he will father.

Having a male fish all picked out we now need a female to go with him, hence our title "Cherchez La Femme". It is my personal belief that the most difficult choice of all is that of picking out the female of the breeding pair, it makes the job of picking the male sheer simplicity by comparison. The trouble lies in the fact that there are only limited ways and means of finding out what our gal can contribute to the mating. As already stated knowledge of recent past history of the strain is a good guide in the selection of a female as well

as a male, color proving with methyl testosterone (male sex hormone) can be very helpful, but could and often does sterilize the female, so about the best is again carefully OBSERVE our batch of females and look them over for size, shape, condition, color and deportment, not forgetting age can also have a great influence, then on the basis of elimination pick out two or three which are better than the rest.

This still does not mean we have made the right choice, but we have narrowed down the odds considerably, with nothing else to go on, we have at least singled out a few breeder females which possess size to help eliminate runty offspring, shape to help eliminate freaks and deformities, health to ensure strong healthy babies, and color to potentially contribute to color improvement of the strain. What remains to be done now is to breed these fish to the male of our choice and most important raise each batch of young separately. If the improved features we are looking for fail to show up among any of the batches of youngsters, then we must try another three females to the same male or males and so on until we either find what we are after or run out of females.

It has been explained to me by a respected member of the International Fancy Guppy Association this way: "In every batch of young fish there is a male with the ability to improve the strain, he is generally quite easy to spot, there will also be a female with the same ability however she is not so easy to spot, therefore, it may be necessary to breed every female in a batch in order to find the right one." Picking out the three best females has the advantage of really shortening this search because the best breeder females usually have three desirable qualities, size, shape, health, color and deportment.

Now a few other points at random. I have found from sad experience that too much inbreeding will cause degeneration of a good strain, this is demonstrated by smaller body size, higher percentage of runts, and cripples, and greater susceptibility to disease. One runs into these problems when breeding brother to sister, son to

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mother or father to daughter. Admittedly some of this inbreeding must be done in order to fix a strain, but personally stay away from it as much as possible. Breeding cousins or second cousins permits one to stay within a strain and maintain some hybrid vigor, thus one only has to resort to inbreeding when necessary demands.

He also noted that the same female may drop one or more batches of very good youngsters and then suddenly switch around and begin delivering poor ones. The only explanation seems to be deteriorating health of the mother or some unobserved malady having its effect. This is why I feel it is important to keep all batches of babies separate until they are old enough to be evaluated, the best are kept, the other culled. The most oft repeated mistake made by novices is to breed for color only, try to breed for size and shape first, worry about color only when you have a strain delivering consistent size, shape, proportion, etc. Color can always be added later by outcrossing.

When you choose a male breeder observe closely the body shape, if he has any slight spinal bends, or a thin narrow peduncle region, if his tail is uneven with elongated or retarded rays, if his dorsal color fails to match the tail color, if he swims with a pronounced wobble, if his belly is bloated or pinched, and if his gill and is hanging or droopy, do not use this male fish as a breeder, chances are that if he can even breed at all he will pass on these defects to his offspring. Some of the defects noted

are hereditary some are caused by poor environment or diet, but none are desirable and breeder males are required to have healthy vigorous deportment. The same advice goes for the females also, but unfortunately some of these defects are pretty hard to spot.

One tip a well respected breeder gave me recently which I pass on. "In choosing female breeders go for those which have short, thick stubby bodies, wide peduncle regions and widest tail spread; these females produce the widest tailed male progeny." I can not argue with his viewpoint because his own females have the thickest and deepest bodies ever saw and the tail spread of the males of the strain is absolutely superb!

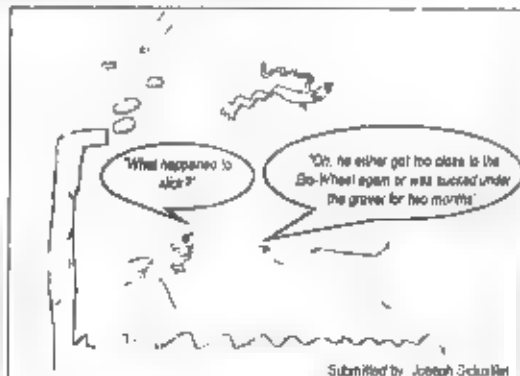
Of course every strain of guppies is different, but allowing for individual strain peculiarities the best and widest tailed males usually come from short, deep, wide tailed females. A well renowned European breeder reports most success with "Superb" females or as we know them "Sharktails" have had better luck with "Round Tails". This should not be taken as indicative that all females should be either "sharktail" or "roundtail" in order to produce wide tailed males, rather to demonstrate there are always two ways of attaining a tail.

Next, do not change horses in the middle of the stream, do not become impatient and start switching males and females halfway through a breeding cycle. Stick with your

original choice and see it through. If you must switch, do so only after your female has delivered her young, chances are very favorable that the new male will father the next brood.

Unfortunately when you purchase a pair of fish you must of necessity use them as your original breeders, if they happen to be brother and sister you are forced to inbreed many as many as two generations draw your own conclusions about the possible outcome. A wiser idea would be to buy at least two pairs of breeders in order that the second generation may be bred from cousins of the first. I have known of some breeders who carry as many as four lines of the same strain for this very purpose, because they too like others have found that too much inbreeding causes degeneration.

Remember this, the goal of every Guppy Breeder is to originate and improve his own strain of fish. Experienced breeders know that there is no short cut way to achieve success, careful choosing of breeders is a major factor in the quest for the perfect guppy and attention to detail in this area is of extreme importance. "Lady Luck" plays a part also, but the breeder himself is the controlling influence. Time and care taken in choosing the parents of the future generation pays off large dividends. I would wish that the job of picking out breeders would be easier but then if it were, there would be little challenge left in breeding the fabulous little fish.



Submitted by Joseph Schaller

THE FISH ROOM: AIR AND ELECTRONICS

YOUR FISH ROOM IS COMPLETE ONLY AFTER YOU HAVE PROVIDED THE NECESSARY UTILITIES

By Peter Latta
Reprinted With Permission
Aquarium Fish Magazine, December 1988

First, a warning. Before I describe the installation of air and electricity, I must urge that you do not take any shortcuts in this important phase of your fish room. Do not try and save money by installing smaller gauge wire or fewer outlets. Correct installation of an electrical circuit is not difficult, but care must be exercised and the local electrical wiring codes must be followed. Most local authorities have wiring codes that are written to ensure that wiring is done properly. These codes are available at a modest cost and will help you make the safest installation possible.

Although I will cover the basics here, I advise you to do additional reading on the subject. I have been a hobbyist for more than twenty years and have a doctorate in physical chemistry, none of which qualifies

me to do household wiring. However, by following the detailed instructions in most good books available at local building supply or do-it-yourself centers, have been able to successfully wire a fish room. In other words, consider a book on electrical wiring as just another part of the cost of the project.

The costs of heating and lighting are major ongoing expenses in the fish room

Now we can begin. In planning the electrical circuits for your fish room, the two aspects of greatest concern are wattage and amperage. It is the wattage rating of appliances that is critical to calculating the

cost of running each electrical item. Thus, if an item rated at 100 watts is run for ten hours, it will have consumed 1000 watts (100 X 10) or one kilowatt hour. A kilowatt is the base unit on which a utility company will determine your monthly electric bill.

If an item is rated in amperage, not watts, you can determine the wattage by multiplying the amps by the voltage, which in this country is usually 110 volts. Henceforth, a piece of equipment rated at nine amps is equivalent to an item rated at one kilowatt (9 X 110). The importance of amperage is discussed below.

Because the costs of heating and lighting will be major ongoing expense in the fish room, it is important to purchase equipment that offers the most economical wattage ratings. For example, although the initial cost of fluorescent fixtures and tubes is higher than standard sockets and light bulbs, the cost of operating fluorescents over the long term is significantly less.

SCAVENGERS

By John A. Rudock
Southern California Guppy Association

One of the more common misconceptions in the aquarium hobby has to do with the role of the so-called scavenger. Many hobbyists regard bottom dwelling fishes as a kind of living garbage disposal system. Their perceived role is to search for and consume any uneaten food particles lying on the bottom of the aquarium. Occasionally, they are even expected to neatly dispose of the carcasses of fishes that have died. A few people go so far as to believe that these creatures will eat the feces of other fishes.

While it is true that catfishes and loaches are

adapted to probing the substrate for something to eat, they certainly do not consume the "waste products" of other organisms. There are no fishes that will eat the feces of other fishes, at least not to any appreciable degree. Furthermore, the notion that these bottom-dwelling fishes are scavengers fosters the perception that they are capable of thriving in water of poor quality. In fact, some hobbyists mistakenly believe that they actually prefer living in such conditions.

These on-going misconceptions are regrettable because they cause these fishes to be neglected in the aquarium. For example, the Plecostomus (which means "folded mouth") is often purchased for the purpose of removing algae from an aquarium. Indeed it excels at this task.

However, what many hobbyists fail to recognize is that the amount of algae growing in a tank is not sufficient to meet its nutritional needs. A Plecostomus must be fed just like any other occupant of the aquarium. And it must be fed a diet that is appropriate for its lifestyle. In other words, it should be provided with blanched algae or zucchini, sinking algae wafers or some other suitable dietary supplement. Likewise, catfishes and loaches should be provided with sinking foods to ensure that they receive an adequate nutritional supply.

Perhaps the most unfortunate consequence of the term scavenger is the hobbyist fails to recognize these fishes as worthy occupants of the home aquarium in their own right. A great number of them are fascinating creatures. They are often as colorful and as interesting to watch as other aquarium fishes. Hopefully, once hobbyists begin to appreciate their true merits, they will begin to get the better treatment they deserve.

than for incandescent bulbs.

Before you purchase anything, you must diagram the electrical circuits and list all of the items you will need. Each hobbyist's diagram will be different as a result of how your fish room is set up and any specific local electrical code requirements. You must determine what types of lighting, heat, pumps and filters you will be running. Once you have a wiring plan and a detailed list of items, you can begin the actual installation.

If your fish room has three circuits, the electrical circuit is dedicated to the electric space heater while the other two are for outlet sockets and lights respectively. A fuse box that can handle at least three or four circuits should be installed between the main electrical supply and the wiring for the fish room. This has two advantages. Each of the circuits can be individually fused, and in case of any emergency all power to the fish room can be turned off quickly.

Each circuit must be protected by a fuse of the correct amperage rating. To determine the appropriate fuse size, you should use the worst case scenario.

with every appliance on the circuit drawing current at the same time. The required amperage rating for a fuse is calculated by dividing the total wattage of all appliances by the voltage. For example, if the space heater draws two kilowatts (2000 watts), divide the 2000 by 110, which is the voltage.

The cable from the main power supply to the fuse box must be capable of safely supplying the total load of the fish room.

The result, 18.2, is the amperage. Thus, the heater circuit must be protected by a twenty-amp fuse. A fifteen-amp fuse would be useless because the heater would always be tripping it, and a higher amperage fuse would defeat the purpose of the fuse, which is to prevent short circuits from starting fires. The wire used for this circuit must also be rated to handle the

much amperage.

The circuit for lights is only slightly more complicated to calculate. Let's say that we have six double fluorescent fixtures each with two eighty-watt tubes. At one hundred sixty watts per fixture, that would be a total of nine hundred sixty watts (6×160). If there are also three single fluorescent fixtures at eighty watts each that is another two hundred forty watts (3×80). Finally, we will assume that there are two incandescent sockets with one sixty-watt and one seventy-watt bulb adding another one hundred thirty watts ($60 + 70$) to the circuit. When the total wattage of 1330 ($960 + 240 + 130$) is divided by the voltage of 110, the result is an amperage of 12.09. Wire rated at thirteen to fifteen amps and a fifteen-amp fuse will be required for the lighting circuit.

The circuit with the outlet sockets may be more difficult to determine with such precision. Therefore, you will have to decide what types of items will be plugged into the outlets, leaving a margin of safety for possible future changes that may increase the circuit load. A typical situation might be as follows. One wall exhaust fan, all one hundred twenty-five watts, four fifty-watt power filters for a total of two hundred watts, four one hundred twenty-five-watt aquarium heaters for a total of five hundred watts and a canister filter at one hundred fifty watts. At a cumulative total of nine hundred seventy-five watts divided by one hundred ten volts, the circuit will have a load of 8.9 amps. By designing the circuit to handle fifteen amps, there will be a significant margin of safety should other items be added later on.

If a compressor or blower is going to be used to supply air to the tanks, strongly suggest that it be placed on its own circuit. The blowers available to hobbyists are an excellent investment when fifty or more tanks are being maintained. These units are offered in a variety of sizes and can supply so much air that an aquarist need not worry about adding additional air lines.

The motors for blowers and compressors

are rated in terms of horsepower. For all practical purposes, one horsepower can be considered the equivalent of seven hundred fifty watts. In other words, one horsepower draws just a little over 6.5 amps. The most efficient blower units require only 1/3-horsepower to deliver ample air for eighty to one hundred tanks.

For those who are handy with tools and like to tinker, you might consider using a compressor from an old refrigerator, which can be powered by a 1/3- or 1/4-horsepower motor. The unit is then coupled to a two- or three-gallon reservoir tank that is fitted with a pressure-activated micro switch. Such a system can deliver clean, oil-free air. When the air in the reservoir reaches the point that the pressure-activated switch is set for the motor is switched off. The air in the reservoir bleeds slowly into the air circuit to the tanks. When the reservoir pressure drops below a predetermined value, the motor is switched back on, replenishing the reservoir. The system can be very economical to operate.

Always install the wiring for the fish room before hooking the fuse box to the main electrical supply. Use only PVC-coated wiring cable, not rubber-coated cable. For ease of access and safety, attach the cable along the front of the shelves, securing the cable to the shelving every twenty-four inches. Only when the cable is completely installed are you ready to bring the main power supply to the fuse box. It is at this point in the installation that you should bring in professional help if you are unsure as to how to proceed with this connection. Remember, the cable from the main power supply to the fuse box must be capable of safely supplying the total load of the fish room.

When working with electricity in the fish room, always, without exception, follow these simple rules. Unplug any unit or appliance before handling it. Pull the circuit fuse before working on the circuit. Never touch a live appliance with damp or wet hands.

My discussion of the air distribution

system for a fish room applies to the use of a blower or compressor to supply air to equipment such as filters and airstones. The basic system is built from lengths of 1/4-inch outside diameter PVC piping, which are connected by T-fittings and elbows that are standard in the plumbing industry.

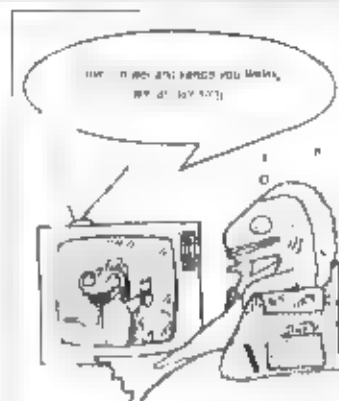
The piping should be installed before aquariums are placed on the shelves. PVC pipe is usually available in eight-foot lengths, which can be fixed to the backs of the shelves, across the top of each bay of tanks, with special brackets. The PVC pipe starts from a T-fitting at the source of the air and returns to the T-fitting. From this "hog" of PVC other lines of piping can be run to accommodate the various shelves of aquariums.

After the air distribution system has been installed, a small hole is drilled at each point where a supply of air is needed and an air control valve is inserted. Brass valves are easiest to install and are the most reliable. It is a good idea that you should practice drilling holes in PVC pipe by using a scrap piece of pipe. Drill holes of varying sizes until you discover which size gives the best fit for the brass valve.

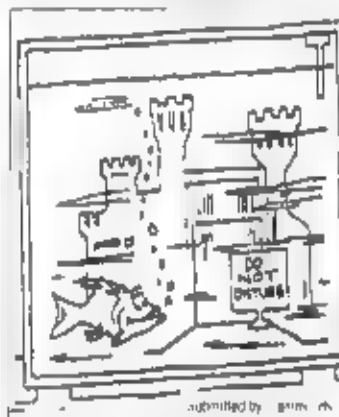
It is a relatively simple matter to run a piece of air line from each valve to supply filters, airstones, skimmers and so on. Because of the amount of air available from a centralized system, it is a good idea to install a few check valves to prevent excessive turbulence or back pressure. A bleed valve is also handy for filling plastic bags with air when transporting fish to a show or auction.

Once electricity and air are installed, the aquariums can be set in place. Now, finally, the fun begins. All of the planning and hard work will seem a small price to have paid as you look around the fish room at the bays of tanks.

In the next issue of the Guppy Roundtable will conclude the series of articles with a discussion of tips and techniques to get the most from your new fish room.



Submitted by: L. J. H. H. H.



Submitted by: J. M. H.



Submitted by: J. M. H.

"Don't blame the monkey!"



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FISH SUFFER STRESS, WHY?

By Gary L. Rumsey
Scientific Director, Turpan Laboratory

A few, but not all, of the conditions that are generally categorized as stresses or factors that induce stress include: disease (bacterial, viral or parasitic), drug treatments, nutritional deficiencies, water of unsuitable temperature, pH, or flow rate, overcrowding, presence of metabolic wastes, or excessive nitrogen levels, and other dissolved gases, vaccinations and grading procedures, and unusual photo periods, movements, or restraint.

Some scientists regard critical life functions themselves such as growth and reproduction as stresses.

Most practicing nutritionists supply the needs of fish during critical life stages by feeding a special formulated diet to supply extra energy and nutrients.

It is generally held among research physiologists who study stress that if a chronic stress is not too great, the animal usually adapts and lives an almost normal existence. When two stresses occur simultaneously however, the animal is less likely to adapt and usually dies.

According to this theory, a fish can live and grow moderately well even though the diet is slightly deficient in a required vitamin or amino acid; however, if it is then suddenly attacked by a gill-disease bacterium, while still adapting to the nutritional deficiency, it may die even though the disease alone is not severe enough to cause mortality.

A fish, like other animals, has several mechanisms for fighting diseases.

The gamma globulins, antibodies, and other immune substances in the blood are capable of reacting with invading disease organisms and rendering them harmless. These substances are protein-like, being composed principally of amino

acids, and their synthesis in fish requires that certain vitamins, minerals, and fatty acids be available.

Theoretically, a deficiency in any one of the major nutrient classes reduces the amount of globulin's and antibodies in a fish's blood stream and lymphatic system and also reduces the resistance of the animal to attack by disease.

Some scientists regard critical life functions themselves such as growth and reproduction as stresses.

The effect of nutrition on resistance to disease and on immunological capability has been a subject of great interest and conjecture for the past decade. For man and his common domestic animals, it has

been a subject of intensive scientific inquiry. Unfortunately, fish have not usually been included, and, therefore is a scarcity of published studies showing a specific role of proper nutrition (or lack of it, in disease resistance of fishes.

The relation between nutritive state and infection can be one of synergism or antagonism, depending on the nutritional state of the host, or the infectious organism involved.

Infections are more apt to have serious consequences usually resulting in death in animals, including fish, experiencing clinical or subclinical malnutrition. Most infections can cause an animal's borderline nutritional state to become a much more serious deficiency. Thus, the effects of malnutrition and infection are said to be synergistic; the combined effects are more severe than the sum of the independent effects.

However, not all infectious agents inevitably aggravate infection in a malnourished host.



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animal. The relation between nutrition and infection may be one of antagonism for many intracellular infectious agents (e.g., viruses) in an animal in a borderline deficient state. This antagonism becomes possible when infectious agents have an obligate dependence on metabolites of the host animal's cells, or have a requirement for a specific nutrient exceeding that of the host animal. Such reports abound in human literature, and an excellent animal model is known for cattle in India.

Starvation suppressed infection and feeding aggravated it in cattle with foot-and-mouth disease.

In the Indian environment of classic dry and monsoon seasons, the incidence of foot-and-mouth disease decreased greatly as the dry season progressed and increased just as markedly after the monsoon season when the cattle were feeding on lush

pasture. Apparently, the virus causing the disease persists in a borderline nutritional situation, and then "flares" when proper or good nutrition is restored.

It has been suggested that a similar scenario is taking place in the Western United States, where cattle manifest bovine viral diarrhea during alternating periods of environmental stress. The animal responses to most infections or infestations follow similar patterns, namely, lassitude or listlessness, fever or elevated body temperature occurring concurrently with an increased metabolic rate, anorexia or unwillingness to eat, and diarrhea.

A nutritional deficiency produces similar clinical responses.

Using the synergism concept, one can visualize the effect that feed intake lower than the metabolic need might have on

an animal. It is this greater metabolic need that must be understood and appreciated. During infection, there is general nutritional wastage (i.e., negative body balances of most nutrients), loss of muscle tone, and general listlessness. The elevation of metabolic rate associated with fever is a significant drain on body energy reserves (i.e., fat and glycogen). The principal nutrient losses from negative balances are nitrogen, potassium, magnesium, phosphorus, zinc, and sulfur.

Theoretically, a ten percent increase in metabolic rate could increase protein (amino acid) need by at least an equal percentage.

The animal's metabolic and biochemical responses to infection result in several other forms of nutrient wastage such as wastage of vitamins, minerals, amino acids, and energy. This wastage is believed to be due

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to the diversion of nutrients from their usual metabolic pathways or their "partitioning" into relatively inaccessible body stores.

An example of the partitioning is a shift of the nutrient iron from the plasma to the liver during infection.

What can then be done in a fish hatchery, or large fish room setup? Or what kind of supportive therapy in terms of nutrition, feeds, and feeding can be used to prevent or lessen the harmful consequences of anorexia and the resultant nutrient wastage by infected fishes? Obviously, the goal should be to nutritionally replenish the sick fish, to hasten their recovery and help them mount the strongest possible immune response.

The general practice of combating or contending with most stress situations related to feeds and feeding has been to increase the amounts of some or all of the vitamins already supplemented to most commercial feeds.

Though the scientific rationale for doing this is unknown, the logic seems reasonable in light of observations that fish exposed to physiological stress generally manifest poor feed intake, simultaneously with increased metabolic rate. An increased metabolic rate would imply an increased

For fishes or for that matter all animals, optimal health and productivity are achieved by providing the animal with the correct amount and form of all known essential nutrients.

Good nutritional practices by the animal or fish keeper require practical diets be supplemented with vitamins exceeding the bare minimum needed to prevent deficiency signs. The goal in the manufacture of animal or fish feed is to supplement diets with enough vitamins to meet nutritional needs while simultaneously compensating for losses incurred during feed manufacture, storage, and feeding (e.g., water leaching).

What level of vitamins should be used to protect the animal from stress or

adversely its immune system?

The application of "safety margins" to vitamin supplements comes with all the risks of toxicity. Animals, including fishes, sometimes show adverse physiological effects when they consume vitamins in excessive amounts. Vitamin levels above those needed to prevent deficiency signs but below those levels known to produce toxicity are said to be "tolerated."

An understanding of this "range of tolerance" for each vitamin would serve as an extremely useful guide to safe and adequate feeding, while simultaneously ensuring animal health. The Committee on Animal Nutrition of the National Research Council (NRC) has recently published a book entitled "Vitamin Tolerance of Domestic Animals." This work plus the recent review "Vitamin Requirements of Fishes" can be used for consideration of the interactions between vitamins and disease.

A complete test, including references and tables, of the Rumsey presentation entitled "Reflections on Nutrition and Stress in Fishes" is available by writing to the Salmonid magazine. The paper accurately summarizes the required and recommended "upper safe levels" of vitamins for salmonid fish and shows how a person might arrive at a proper level of vitamin fortification for a fish feed. A "stress adjustment coverage" is used, that, when added to the overages used to compensate for "biological variation" and "processing and storage losses", can be compared with estimated safe

Rumsey summarized by saying it is generally agreed that any number of nutrient deficiencies can increase susceptibility to disease in fish, or cause functional alterations in immune response mechanisms. Furthermore, supportive therapy aimed at replenishing the affected animal with critical nutrients to hasten recovery and enable it to mount a strong immune response, might involve using overages of select or all dietary essential nutrients.

HELP GUPPY ROUNDTABLE NEEDS YOU

Have you succeeded in locating the elusive keys to mastering the complexities of guppy genetics? Has anyone conjured up a new guppy peepee food recipe guaranteed to maximize the growth potential of your fish? Does anyone have a revolutionary water changing system in their fishroom? Is anyone whipping up a magical witch's brew of chemicals to enhance the color of guppies???

Don't be shy about sharing the secrets of your success. The Guppy Roundtable is widely regarded as the most effective forum for guppy breeders from around the world to meet colleagues and swap their "hot tips." You support Gye, Pat, and me! You're all part of the same family. Help us to maintain the reputation of quality of our newsletter. Contribute to the success of the Guppy Roundtable by writing an article for publication TODAY!

Please forward your article to:

Deviene Tait, Editor
Pan Pacific Guppy Association
3519 Marlene Avenue, Unit 8
Los Angeles, California 90034-5643

ARE YOU BEMUSED, BEWILDERED AND BEMOORED?

Curious why your guppies are judged as "too mild" at International Fancy Guppy Association sanctioned bowl shows? Feeling overwhelmed when musing your way through the complexities of guppy genetics? Are you totally bewildered over what to feed your guppies to achieve their optimal growth potential? Confused whether you should have bred, line bred or outcross your guppies???

Send your questions for personal answers by Paul Godth, Judging Board Chairman and Stan Shabel, Former Judging Board Chairman of the International Fancy Guppy Association in the *Some of This, Some of That* column of the Guppy Roundtable to:

Deviene Tait, Editor
Pan Pacific Guppy
Association
3519 Marlene Avenue, Unit 8
Los Angeles, California 90034-5643

NOTES ON ACTIVATED CHARCOAL

By Laura Palmer
Westside Guppy Association

What is activated charcoal?

Firstly, it is not just regular charcoal (like charcoal briquettes). It is prepared by heating wood (or other materials), to about 600°C (1110°F) in the absence of air, and then again for a short time at 900°C in air, carbon dioxide or steam to increase porosity.

Why is it used in fish tanks?

To clean and purify the water.

Discolored organic substances and fish by-products are attracted to the charcoal and adhere to the myriad surfaces.

Does using more charcoal make better purification?

Since the whole process is based on surface adsorption, the more surface area you have the more substances can be adsorbed before the charcoal is "spent."

DESPERATELY SEEKING DOODLERS!!!

Are you artistic? Have you experienced a funny (or not so funny) "fish itch"? Do you have a sense of humor (waspish, or otherwise)? Are you dying to share your creative cartoons, drawings, drawings, illustrations or sketches with the membership of the Guppy Roundtable??? Send your humorous sketches for publication to the Guppy Roundtable, the official monthly publication of the International Fancy Guppy Association.

Unless otherwise requested, submissions become the sole property of the Editor and will not be returned to the artist. Artists will be duly credited in the Guppy Roundtable.

Please forward illustrations to:

Deviene Tait
Pan Pacific Guppy Association
3519 Marlene Avenue, Unit 8
Los Angeles, California 90034-5643

A pound of good activated charcoal will give more surface area than a farmer nail on a one hundred acre farm.

How can you tell when your charcoal is all used up?

As the pores adsorb organic matter they will become filled. This can often be seen as a thin surrounding the "spent" charcoal.

Will it still purify when it is spent?

As the muck builds up around and within the pores of the charcoal the water cannot come in contact with the pores, which would probably be unable to adsorb any more pollutants anyway.

Is there any test to determine if charcoal is still adsorbing?

One way is to add a little methylene blue to the tank and if the decoloration is gone in twelve hours, the charcoal is still active.

Can the spent charcoal be reactivated?

Most aquarists do not have the facilities

to treat the charcoal to the necessary temperatures (an oven just does not get hot enough). Chemical reactivation is not practical for such small quantities of charcoal. Some breeders are having success dissolving out the organic matter by submerging the charcoal for twenty-four hours in alcohol, rinsing well, and allowing to dry in sunlight to dissipate any remaining chlorine.

How often should the charcoal be changed?

This varies according to the number of fish in the tank, amount of high protein food fed, how much charcoal is in the filter, etc. Experimentation is necessary to suit each

Does charcoal filtered water affect the growth of fish?

According to experiments by William Lewis, Ph.D. and Frank Schneidermeyer, reported in *Aquarium Magazine*, in a six-week period the weight increase of fish in charcoal filtered water was almost twice that of fish in unfiltered water.

NOVICE TO NOVICE



Submitted by Tom Wenderhooper

HORMONES! THEIR USE AND PITFALLS

By Willem Harrington

Most of us, at some time or another, have seen fancy guppies that were perfectly formed and have been tempted to buy them. However, after looking over the guppy selections available, we have passed those medium sized beauties up for a bigger, but less perfect, individual pair of guppies, only to find that the fry we reared from this larger pair were smaller when full grown than their parents. There could be another reason besides the way we fed them as to why the parents were parents and the fry were not. It could be that the parents were the recipients of a long known, but little used substance which helps regulate all our metabolism, including growth. **HORMONES!**

Yes, **HORMONES!**

A few words are in order here for anyone who would gape. In most of our medium to large cities, both in this country and throughout the world, there are Aquarium Societies and Guppy clubs in particular. These different clubs hold competitive shows at intervals where an individual, whether a club member or not, may show his fish. Depending on one's ability as a keeper-of-fish, which his fish attest to through their colors, shape and size, he or she may win a trophy or ribbon.

Now, at the risk of some one differing with the opinion being offered, we say that the chances are excellent that the winner or any of these guppy shows will be the individual or individuals, who use hormones on their fish. The careful use of hormones will help produce guppies who of their own, could not be nearly as big as these are or were.

I see no evil in the use of hormones. I do not want to be part or parcel however to those individuals who use hormones indiscriminately to the detriment of the

hobby, i.e. the sale of fish that are known to be hormonized to the point of not being able to produce fish of their own strain. For the individual who offers for sale a sterile fish as a typical representative of his strain of fish, is not telling you the truth. If his fish are sterile, it will not be long until he has no fish left.

We feel the buying public should know that

Could there be another reason besides the way guppies are fed as to why the parents are "giants" and the fry are punts

he or she can buy fish that will propagate if given reasonable care. From then on, it is the ability of the keeper that will either give or deny pleasure to the challenging, fascinating hobby.

This article is entitled "Hormones! Their Use and Pitfalls!" It is not the last word on hormones and their uses, but only attempts to shed some light on the subject.

There are many hundreds of these substances, both man-made and natural (extracted from the glands of man or animals that produce them) and more are being discovered every year.

As with any medication or drug, there is some danger in the misuse or handling of these hormones. There is always the danger that they may be harmful, either to the specimen it is being administered to or to the person doing the handling of these products. As children are the first concern in most households, these products should be stored out of the reach of children. Always keep them out away and out of reach.

Because these substances are generally not available without a prescription, we can only tell you what various researchers have said of their uses and abilities. Below is a

typical synthetic hormone that we have knowledge of.

STILBESTROL SOLUTION

1 1/2 cups seventy percent Alcohol
1-250 mg capsule Stilbestrol or equivalent

Dissolve the capsule in the alcohol and add to it enough distilled water to make a total of one quart.

There are several ways to use this solution. The end results, however, are generally the same, a larger guppy than you can now raise if you are not now using any hormones.

The guppies that you wish to use this on should be not less than two weeks old nor more than seven weeks old; or have formed a complete gonopodium in the males. Prior to these age limits or after the forming of the gonopodium, the use of Stilbestrol Solution will only result in negative effects on your fish, i.e. death to them or the transformation of all the males into a sterile fish with feminine

characteristics. In other words, a worthless batch of fry that will not be of any use to you and a waste of your time, especially if you planned to enter them in such a show at a given age in the future. Generally it is safe to take a batch of guppy fry two to three weeks old, and put them into their own aquaria (do not use under gravel, or sub-sand filters, sand gravel or plants in this aquarium, a cheap inexpensive inside or outside hanging filter is all that one should use.)

If you use a five gallon tank for your hormone treatments, put in the fry, and feed them as you normally would. On every third day put into the aquarium one drop of Stilbestrol Solution per each twenty gallons of water. Do this ritual for twenty-one days, a total of seven applications will have been made (Three days X seven treatments = twenty-one total days).

After this time you can put these fish into whichever aquarium you wish. They should outgrow you with their growth rate and their eventual size.

As with anything that is a medication, if it is either swallowed, injected, or absorbed, Stilbestrol is an oil soluble substance and because a guppy is oily, they absorb the solution into their bodies. For the same reason, you should take care when using Stilbestrol that you keep yourself out of the aquaria and you children or pets likewise as you will absorb the solution and possibly not to your eventual liking.

The potency that has been described (one drop to twenty gallons) is generally sufficient but because not all water is alike nor all fish either, sometimes the one drop per twenty gallons will not be enough. Under no circumstances should you use over one drop per gallon. The last time and effort of overdosing a good thing are not worth it.

Last, but certainly not least, keep accurate records. Evaluate what you have done to your fish. The guppy is here to stay and only its environment can be changed and the will have some noticeable effects on them. Hope this information will help your guppies to become more beautiful and bigger.

WATER QUALITY

The most important part of a fish's environment is the water in which it lives, and yet it is often the most neglected part of the aquarium. Poor water quality will give poor quality fish. You must study the requirements of your particular species and adjust the water to their needs.

Even worse than poor quality water are sudden changes in that quality. The worst possible conditions for the fish are to leave a tank until it is filthy and then scrub it out and refill with pure tap water. This can cause an environmental shock of such magnitude that the fish may not survive for long. Always adopt "new tank" procedures after major water changes.

TAP WATER

Tap water is designed for drinking not fishkeeping. When setting up a new tank,

you may have to use tap water but do add a dechlorinator to remove poisonous chlorine and a tapwater conditioner to help age the water. Start with only a few hardy fish until the water matures. It helps to seed a new tank by adding old aquarium water from another set-up, or from a clean garden pond. Always ensure that old water is disease-free. If in doubt, DON'T add old water. Whenever possible use rainwater.

MATURE WATER

Once your aquarium has matured (seen by sweet-smelling, crystal clear water with a soft feel) never throw all that valuable water away. Only do partial changes (thirty percent bi-weekly are best) to dilute the excretia. Use soft (rain or distilled) water to top-up but keep this evaporation low by using a cover-glass. If you or the fish move house, move as much of the

water as possible.

DISTILLED/DEIONIZED WATER

Although distilled and/or deionized water may be used for minor water changes, they must not be used for major ones, unless vigorous aeration, accompanied by a prolonged maturation period is also provided. This is because oxygen is not present in these waters. Do not use ion-exchange water from household water softening units, at all.

KEY TO SUCCESS

Since fish can absorb chemicals directly from the water, particularly trace elements, it is important to meet a fish's requirements in terms of water quality. For best results therefore, match fish and water chemistry as closely as possible.

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WHAT I GET FROM BEING A MEMBER OF A GUPPY CLUB

By Richard W. Fleming
Westside Guppy Association

When I started in the tropical fish hobby, I never had any idea that there were organizations dedicated to the hobby. I was already on my way to becoming a "guppy-holic" (I had sixty tanks dedicated to them.) When I read an advertisement for a guppy auction and show. Never having been to one, I convinced my fiancée (who is now my wife), into stopping at it on the way to a family function. I actively participated in the auction of the Pan Pacific Guppy Association, and momentarily "toyed" with the idea of joining the club. However, being a typical lazy Southern Californian dazed with a myriad of weekly entertainment options, I was unwilling to commute thirty to forty miles for the club monthly meetings.

Two years later I was contacted by several people informing me that a new guppy club was being organized in the area of my home that would significantly reduce my commute time to club meetings and was asked if I was interested in joining. It did not take much "arm twisting" to convince me that I would reap tremendous benefits by actively participating in the formation of this new club, subsequently dubbed the Westside Guppy Association. I am now happily an active member of this organization and recently attended its fourth monthly meeting.

Most people at work, and almost all of my friends, think I am crazy for dedicating a room in my house to my sixty guppy tanks. At the most recent meeting of the Westside Guppy Association, people wonder when I am going to add more tanks in the room. I enjoy my hobby, and now I really enjoy spending at least one evening a month talking about it. Most of my coworkers could not tell a Goldfish from a Red Delta. I enjoy the time spent with people whose most common denominator is fish (especially fancy guppies).

The age range in the Westside Guppy Association is from grandparents to teenagers. Nobody looked strangely at one of our younger members when he used to correct our pronunciations of the scientific names used to describe fish. One of our newest members is in my mother's age group, and is learning fast about the hobby.

Most of my friends, think I am crazy for dedicating a room in my house to my sixty guppy tanks

In today's often turbulent world, it seems the monthly meetings of the Westside Guppy Association is one of the few places where no one cares about your color, race, religion, social status, etc. We only care that you share our enthusiasm for keeping fish and that you help us rejuvenate our

own enthusiasm in the guppy hobby. WHY?

I already knew as much or more than my local pet shop owners when I joined the Westside Guppy Association. I wanted more information about my hobby and thought the club would be a good place to get it. WAS RIGHT. Now have stacks of handouts and notes concerning fishkeeping. Where else can you meet and talk to some of the acknowledged experts in the field but at meetings and conventions?

And I am still learning! The publication of the International Fancy Guppy Association, the Guppy Roundable, invariably has something I am interested in (inside its covers). And when I have a question about how to breed a guppy, or cure a disease, or where to get a certain fish, I have a whole group of fellow "guppy nuts" to contact if I can not find the information myself. The Westside Guppy Association's monthly programs also help in opening up new information and ideas about the guppy hobby (our recent program consisted of an in depth discussion

WORMS AND YOU!

We like live food! They may be messy, they may take up refrigeration space, they may even smell (microworms-ugh!), but tranquil fish become virtual pianists at feeding time to ensure they get their little morsels. Not only do they fight each other for some, but they usually have a little struggle to get the live food down.

The live foods which we feed are mostly of the worm group. We use blackworms, white worms and earthworms. The only ones we can not collect ourselves are the blackworms, which most fish stores sell for a dollar per portion. Collecting worms is not difficult, especially in the springtime. Just turn over some rocks or logs and chances are you will find some. Do not worry about the size. Large worms can be broken in to smaller pieces and small

ones can be fed whole depending on the size of the fish of course.

We know most of you are saying to yourself "Guppies do not eat worms". You can bet that in nature, when it rains, guppies are gobbling up every worm and insect that washes their way into and gathered some worms during the first warm weeks in the Spring. We fed them to all of our guppies large enough to eat them, and some even swam around the tank with worms dangling from their mouths for a while. In one week we had four "infertile" lines drop fry: AQG, Black, Half-Black Blue and Half-Black Red Delta. We do not credit the worms for all the drops of fry, but it was a great week! So, by live foods, especially this time of year when they are so readily available and free.

and demonstration of a feeding regimen to optimize the growth potential of guppies).

WHY?

I once looked at the hobby as a way of maintaining my sanity away from the pressures of work. Now I look at it also as a means of meeting people from all over the Southern California area, from all over the country, and from all over the world.

I joined the club because I wanted to learn more. Now I find that I am constantly asked how to breed or cure guppies. I find that the old saying, "He who helps others, helps himself," is very true. I have learned as much from helping others grow in the hobby as I ever did when I first started asking questions as a novice. It gives me a feeling of accomplishment that I have gained some measure of expertise in a field where my only compensation is a good feeling.

WHY?

On the walls of my fishroom are a couple of ribbons, and a couple of plaques. One plaque is a Breeder's Award, the others for show entries, and the ribbons from the Greater Seattle Aquarium Society bowl shows (I was a member of this fine aquatic

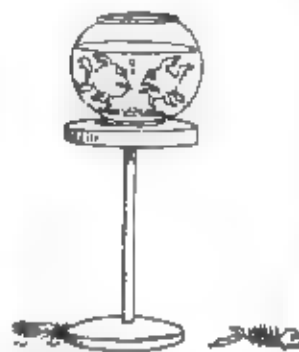
organization for many years before moved to the Southern California area several years ago). None of the show plaques are for first place, and most of the ribbons are not blue, but I am proud of every one of them. Showing off and breeding your fish gives you a measure of peer recognition. It is an esteem that should not be held lightly and cherish it. And, it gives me a chance to be a little bit proud about my "prized" guppy pets.

WHY NOT?

If you are not a member of a tropical fish society (preferably a guppy club), why aren't you? I have laid out the benefits, camaraderie, accomplishment, information, and plain old fun!

I became a member of the Westside Guppy Association to learn and promote our little friend, the fancy guppy. I will stay a member for all the other things the club has given me and allowed me to give it. I may be biased, but if I was keeping only a couple of tanks, I would still join just for the social aspects of being a member.

Why don't you join a guppy club today? You will not regret it for a minute, I sure don't.



Submitted by Richard W. Fleming

"I guess no male. It had been more than a week since he went over the egg."

LYMPHOCYSTIS DISEASE

By Donald Morgan, D.V.M.
Southern California Guppy Association

This is an infectious disease to which weakened or stressed aquarium fishes are especially prone. It is more often associated with a deficiency, such as inappropriate or insufficient diet, than with poor water quality. Many species of marine fishes, especially angelfish and butterflyfish, are prone to attack and die. In freshwater, many species of labyrinth fishes are most likely targets in fresh water. On rare occasions fancy guppies have been known to be attacked by this disease, although the frequency of incidence is not well-documented.

The immediate cause is a virus which penetrates the surface cells of the host and causes the cells to enlarge about

one hundred fold, producing the grape-like growth so easily recognized. No medication is currently available which is effective against this virus.

The growth may be cut away if on a fin or scraped off carefully if on the body. Be sure to do this away from the tank and to bath the fish before returning it to the aquarium so as not to spread the virus. The patient and its tank mates should be given the best possible diet with vitamins and trace elements being vitally important.

Fortunately for both the fish and the fishkeeper, the infection may be cured in its early stages by proper feeding without an operation.



"Move it, the place is into the doctor's eyes!"

Submitted by Joe Fendley

A TIDBIT OF GUPPY INFORMATION

By Elizabeth G. McInerney
Westside Guppy Association

The guppy seems to be the poor man's fish or, at best, the novice's fish. This is not true. If you have the time and the patience to persevere, the guppy can be very rewarding.

Time and patience is needed if you want to develop and strengthen one or more strains. It is advisable, if you are starting out, to work with only one strain. It is well known that the guppy is a livebearer. This means that the female bears her young alive. One interesting fact about the fish (as well as swordtails, mollies, platies, etc.) is that the female can store the male's sperm for up to five broods. That means once the female has come into sexual contact with the male, she can throw live broods without any further contact with him.

The term for this is OVIPARIOUS. Guppies are fairly hardy and are recommended, quite often, for those who are setting a new tank or for those who are not experienced fish keepers. The joy of keeping guppies is not for community tank life, although they do quite well in that situation, but "in line" breeding them.

To begin, start with a good male and two good females. What exactly do we mean by good? In the male, you are looking for a well-developed tail and dorsal fin which is well-formed and full-bodied. In the female, look for a well-rounded body and good fins. Color is important if you are trying to develop a strain. For example, you would not ordinarily mix a blue tailed male with a red colored female. Try to pick the same color variations to begin with.

It is important that you start with a minimum of a trio, preferably two trios of the same strain. The male is so sexually active that he can, literally, wear out the female. Place two trios into separate five, or better yet, ten gallon tanks. It is not necessary to have the tank planted nor the gravel. In fact, it is easier to work with a bare tank with

only some Java Moss or Riccia floating. This setup facilitates the removal of either the parents or the fry.

Let the female throw four batches of fry. You cannot be sure that the female was kept with other guppies of her strain. The male, that is with her currently, can influence the last two batches of fry, but this cannot be taken for granted.

Be patient and maybe you will be the one to develop a new color strain for the common little guppy that will be not quite so common.

It is recommended that you raise the fry, but do not use them for further breeding experiments. This process can take up to four or five months. Once you are sure that your strain is clean, you can start raising the fry. It is not a good idea to cross the father

with daughter or mother with sons. This causes inbreeding and poor quality fish.

Assume now that we have bred and raised the second generation which is the result of two trios. Now we can breed back the second generation to either of the first generation. To enhance your strain, look for other guppies that have the qualities that you want to develop further. For example, a king flowing dorsal fin. Find a male that has this and mate him with your female(s).

Always keep more than one breeding trio in separate tanks. This will help to avoid tragedy from disease, jumping Oscars and helpful children with large cans of fish food. The keeping of more than one breeding tank of guppies also allows for a large gene pool for the strain to draw on which will result in a healthier strain. Most important, don't forget to add the new fish to the strain to keep it strong and healthy.

Be patient and maybe you will be the one to develop a new color strain for the common little guppy that, perhaps, will be not quite so common.



...and keep an eye on him!

SOME OF THIS, SOME OF THAT

By Paul Gorski, Judging Board Chairman
Stan Shubel, Former Judging Board Chairman

Question: Do you maintain a salt concentration in your tank water?
John Caldeira

STAN SHUBEL: Now add one-half cup of table salt to a newly established fifteen gallon tank along with one drop of A.B.A. per five gallons. No additional salt is added from that point, however. Feed live baby brine shrimp without rinsing them in fresh water so some salt is added in this manner.

Question: What size tanks do you use?
Elaine Poy

STAN SHUBEL: Five gallon tanks for breeders and young fish. Ten gallon tanks for the intermediate stages and fifteen gallon tanks from then on.

Question: Are the styrofoam white pads (similar to a power filter insert) used by some companies as packing inserts toxic to fish?

John E. Carroll

PAUL GORSKI: Not that I am aware of. Many of us used to make floating feeding

rings (for dry foods) to keep dry and flake foods from spreading throughout the tank. This is especially helpful if you are floating water sprays in the tank.

Question: When did you start showing guppies competitively?
Bruce Jung

STAN SHUBEL: Some time in the '960's

Question: What kind of filter do you use?
John Caldeira

STAN SHUBEL: Inside corner filters with the tops removed. Filter floss and glass marbles are used as a filter medium.

Question: How can a hobbyist tell if plastic items are toxic to fish?
John E. Carroll

PAUL GORSKI: The only sure way to determine if a plastic item is toxic to fish is if it kills your fish, then it is toxic.

Question: What are your keys from preventing a strain from going downhill? That is, from producing show fish one year to "junk" the next?
Elaine Poy

STAN SHUBEL: Use only line or inbred fish for breeders. When fish start producing "junk" fish in one year they are usually a F2 generation of hybrid fish. The F1 or first generation of two unrelated strains can produce show fish but when you again breed these fish they can turn out "junk".

Question: How often do you perform partial water changes? How often do you break down your tanks?

Bruce Jung

STAN SHUBEL: It would probably average out to every other week. Whenever there is a serious disease problem, or if the tank simply gets too dirty as a result of overfeeding or my allowing the buildup of algae on the sides to get out of hand.

Question: What criteria do you look for when judging female guppies on the show bench? Is good body size or good color more important?

Richard W. Fleming

PAUL GORSKI: Both are equally important. Check the IFGA Official Rules and Judging Standards booklet for details. A new edition is available (see ad in Guppy Roundtable).

GUPPY ROUNDTABLE

VOLUMES ONE & TWO NOW AVAILABLE IN A SPIRAL BOUND EDITION

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Volume One & Two of the Guppy Roundtable, the official monthly publication of the International Fancy Guppy Association, contains facts and information you will not want to miss. You will gain more joy and knowledge from your guppies after reading both volumes of the Guppy Roundtable. A wealth of information written by the country's preeminent breeders of fancy guppies for the incredibly low price of \$25.00 per volume, which includes all handling, shipping and Priority Mail postage charges.

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MESSAGE FROM THE PRESIDENT

Dear Members:

A new show season sends everyone bustling to get out of the gate on top. After years of opposing the split season I am finally getting used to it and am beginning to think it revitalizes interest in the middle of the summer. It is still hard to plan to have two sets of fish in a single season.

If you are beginning to have trouble keeping up with your fish and the work is starting to get you down, then try what I do, cull! Cut you out the fish back to one fish per gallon or two gallons of water you will end up with more top quality fish than if you raise three or four per gallon. You definitely reduce the cleaning required. The shrimp go further and each fish gets more shrimp. Your disease problems will lessen and fin rot is much less frequent, use reverse culling. Keep the best fifteen to twenty prospects out of a tank and toss

the rest. These will be down to about ten fish in a fifteen or twenty gallon tank by show time.

Much discussion has been heard about increasing the membership of individual clubs. Think the single most important factor in attracting and keeping new members is providing them with top quality fish and having interesting meetings that function at the level of the beginning to intermediate hobbyists. It is up to the individual clubs to foster these activities. Unfortunately, the IFGA does not have the budget to support these projects. To date no one has stepped forward to volunteer to produce these kinds of programs. Keep thinking about it, if anyone has any ideas regarding this drop me a note.

Until Next Month,
Jim Alderson

International Fancy Guppy Association Officers

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OFFICIAL INTERNATIONAL FANCY GUPPY ASSOCIATION ACCUMULATIVE AWARD POINT TOTALS THROUGH MAY 1, 1984

DELTA CLASSES

ALBINO		AOC		AOC BICOLORED		BLACK	
1 Daryl Parton	2,100	1 Stephen Kwartler	1,840	1 Steve Wall	3,220	1 Tim Peters	3,400
2 Ed Nien	880	2 John Burgess	1,440	2 James Magrison	330	2 Frank Schuberger	800
3 Gene Goldmowski	540	3 B. VanDenLangerberg	440	3 Michael Bower	280	3 Michael Busch	540
4 Mark & Pam Lewis	200	4 Davidson Tait	140	4 Jim Jaku	180	4 Tom Wardenhoop	340
BLUE		BLUE/GREEN BICOLORED		BRONZE		GOLD	
1 Jim Alderson	1,720	1 Mike & Kathy Slater	3,020	1 Tom & Pat Allen	2,520	1 B. VanDenLangerberg	4,080
2 Stan Shubel	680	2 Elaine Fay	280	2 Dick & Andrea Wagner	280		
3 Tom Humphreys	280	3 Dick & Andrea Wagner	600	3 Ron & Betty DeVore	80		
4 Fred Fregasso	300	4 Mike & Kathy Slater	200	4 Tyrone Burgess	80		
				4 Gene Goldmowski	80		
GREEN		HALF-BLACK AOC		HALF-BLACK BLUE		HALF-BLACK PATEL	
1 Jim Alderson	2,480	1 Stephen Kwartler	3,200	1 Michael Busch	1,400	1 Jim Meier	2,380
2 Jim Russell	580	2 Jim Alderson	1,080	2 Larry Hollingsworth	800	2 Dan Espinosa	640
3 James Magrison	300	3 Tyrone Burgess	180	3 Jim Alderson	880	3 Jim Jaku	340
4 Tom & Pat Allen	280	4 M & M Goldmowski	80	4 Thomas Joffred	320	4 Steve Swickowski	280
HALF-BLACK PURPLE		HALF-BLACK RED		HALF-BLACK YELLOW		MULTI	
1 Stephen Kwartler	1,200	1 Jim Alderson	240	1 Elva & Maria Bryant	2,560	1 Daryl Parton	2,320
2 Thomas Joffred	740	2 Stan Shubel	640	2 Gary Mousescu	2,280	2 Rudy Strider	480
3 Jim & Brenda Thiele	420	3 Gary Long	780	3 Gary Long	300	3 Jim Jaku	400
4 Ed Richmond	200	4 Thomas Joffred	800			4 Fred Fregasso	380
PURPLE		RED		RED BICOLORED		SHARKSKIN SOLID	
1 Gary Mousescu	740	1 Jim Alderson	1,740	1 Jim Jaku	740	1 B. VanDenLangerberg	4,000
2 Terry Wasylyk	880	2 Gary Mousescu	1,740	2 Bruce Jung	640	2 Tyrone Burgess	220
3 M & M Goldmowski	480	3 B. VanDenLangerberg	440	3 Rudy Strider	340	3 Karen Kammerer	180
4 Stan Shubel	420	4 Tom Humphreys	340	4 Dick & Andrea Wagner	300	4 Jim Alderson	120
SHARKSKIN VARIEGATED		SPYGLASS		YELLOW		JUNIOR OVERALL	
1 Michael Bower	3,200	1 Steve Wall	2,800	1 B. VanDenLangerberg	4,040	1 Andy Busch	3,020
2 Ed Nien	880	2 Bob Resch	1,800	2 Tyrone Burgess	280	2 Jeff Swickowski	1,120
3 James Magrison	800	3 Fred Hall	1,200			3 Keith Goldmowski	840
4 John Wuff	100	4 Stephen Kwartler	740			4 Wendy Long	880

VEIL CLASSES

BODY/EYE COLOR		HALF-BLACK		SHARKSKIN		SOLID CAUDAL		VARIEGATED CAUDAL	
1 Tom & Pat Allen	700	1 Jim & Brenda Thiele	880	1 Ed Nien	7,040	1 Jim & Brenda Thiele	800	1 Steve Wall	540
2 Daryl Parton	480	2 Elva & Maria Bryant	300	2 Michael Bower	180	2 Jim Alderson	240	2 Jim Jaku	400
3 Gene Goldmowski	280	3 M & M Goldmowski	200	3 Jim Jaku	180	3 Tom & Pat Allen	280	3 Stephen Kwartler	280
4 Dan Whitmer	100	4 Jim Alderson	100	4 Karen Kammerer	40	4 Gary Mousescu	200	4 Dick & Andrea Wagner	180

FEMALE CLASSES

ALBINO FEMALE		AOC FEMALE		BLACK FEMALE		BLUE/GREEN FEMALE		BRONZE FEMALE	
1 Gene Goldmowski	1,240	1 Michael Bower	840	1 Tim Peters	980	1 Tom Staggall	840	1 Tom & Pat Allen	920
2 Gary Mousescu	200	2 Tom Staggall	480	2 Jim & Brenda Thiele	480	2 Davidson Tait	480	2 Davidson Tait	280
3 M & M Goldmowski	120	3 M & M Goldmowski	240	3 Thomas Thiele	140	3 Dan Whitmer	80	3 Gene Goldmowski	200
4 Dan Whitmer	80	4 Gene Goldmowski	200	4 Tom Wardenhoop	100	4 Stan Shubel	40	4 Don Saurer	40
GOLD FEMALE		HALF-BLACK AOC FEMALE		HALF-BLACK RED FEMALE		RED FEMALE			
1 Gene Goldmowski	480	1 Mark & Pam Lewis	320	1 Jim & Brenda Thiele	800	1 Frank Baris	820		
2 Steve Swickowski	280	2 Gary Mousescu	320	2 Robert Pargue	180	2 Dan Whitmer	380		
3 Frank Baris	200	3 Steve Swickowski	320	3 Frank Baris	180	3 Stan Shubel	180		
4 Davidson Tait	100	4 M & M Goldmowski	240	4 Floyd Christie	80	4 John Wuff	140		

GRAND OVERALL MALE

1 Jim Alderson	14,520
2 Bob VanDenLangerberg	9,280
3 Gary Mousescu	8,300
4 Stephen Kwartler	6,320
5 Steve Wall	5,280
6 Daryl Parton	3,940
7 Tom & Pat Allen	3,520
8 Jim Meier	3,020
9 Mike & Kathy Slater	2,960
10 Michael Bower	2,880

GRAND OVERALL FEMALE

1 Tom Staggall	3,140
2 Tim Peters	1,480
3 Gene Goldmowski	1,480
4 Davidson Tait	1,280
5 John Wuff	880
6 Michael Bower	880
7 Jim & Brenda Thiele	720
8 Michael O'Leary	640
9 Frank Baris	600
10 Tom Wardenhoop	640

BREEDER MALE

1 Jim Alderson	2,280
2 Gary Mousescu	840
3 Thomas Joffred	600
4 Stephen Kwartler	420

BREEDER FEMALE

1 Tom Staggall	300
2 Tim Peters	800
3 Tom Wardenhoop	480
4 John Wuff	380

NOVICE OVERALL

1 Michael O'Leary	2,320
2 Mike & Kathy Slater	1,940
3 Bob Resch	780
4 Joe Shufers	380

GET SMART

INTERNATIONAL FANCY GUPPY ASSOCIATION "OFFICIAL RULES & JUDGING STANDARDS"

THE NEWLY REVISED EDITION OF THE INTERNATIONAL FANCY GUPPY ASSOCIATION "OFFICIAL RULES & JUDGING STANDARDS" IS NOW READY FOR DISTRIBUTION. LEARN ABOUT ALL OF THE CHANGES THAT HAVE BEEN ADOPTED SINCE MAY 1983. IF YOU ARE SERIOUS ABOUT SHOW GUPPIES, THIS BOOK IS A NECESSITY AND AN INVALUABLE LEARNING TOOL. THESE BOOKS ARE SERIALIZED SO THAT FUTURE CHANGES CAN BE INCORPORATED INTO YOUR BOOKLET. ORDER BY MAIL, THE PRICE IS \$10.95, WHICH INCLUDES FIRST CLASS MAIL POSTAGE.

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BEST OF SHOW TANK (THIRTY-TWO ENTRIES)

FIRST PLACE JIM ALDERSON Red	SECOND PLACE JIM MAER Half-Black Pearl	THIRD PLACE FRANK ORTEGA Blue	FOURTH PLACE TYRONE BURGESS AOC
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BEST OF SHOW MALE DELTA (THIRTY-TWO ENTRIES)

FIRST PLACE DAVID GENE TAIT Red	SECOND PLACE JIM ALDERSON Albino	THIRD PLACE JOE RANKIN Half-Black Pearl	FOURTH PLACE ED RICHMOND Half-Black AOC
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BEST OF SHOW MALE SWORD/VEL TAIL (THIRTY-TWO ENTRIES)

FIRST PLACE TOM & PAT ALLEN Baby Eye Color Vel	SECOND PLACE JOHN ALLEN Single Sword	THIRD PLACE MIKE MCKENNA Solid Vel	FOURTH PLACE FRANK ORTEGA Double Sword
------------------------------------------------------	--------------------------------------------	------------------------------------------	----------------------------------------------

BEST OF SHOW FEMALE (THIRTY-TWO ENTRIES)

FIRST PLACE DAVID GENE TAIT Half-Black AOC	SECOND PLACE DAVID GENE TAIT Red	THIRD PLACE DAVID GENE TAIT Blue/Green	FOURTH PLACE DAVID GENE TAIT Sword
--------------------------------------------------	----------------------------------------	----------------------------------------------	------------------------------------------

BREEDER MALE (SEVEN ENTRIES)

FIRST PLACE JOE RANKIN	SECOND PLACE B. WOODENHOEFER	THIRD PLACE GARY MOUSSEAU	FOURTH PLACE B. WOODENHOEFER
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BREEDER FEMALE (SEVEN ENTRIES)

SECOND PLACE TOM WEDENHOEFER	THIRD PLACE TIM PETERS	FOURTH PLACE TOM WEDENHOEFER
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JUNIOR DELTA SEVEN ENTRIES

1. Jeffery Swankowski
2. Jeffery Swankowski
3. Andy Busch
4. Andy Busch

JUNIOR TANK FOUR ENTRIES

1. Jeffery Swankowski
2. Jeffery Swankowski
3. Jeffery Swankowski
4. Andy Busch

JUNIOR VEL TWO ENTRIES

1. Jeffery Swankowski
2. Jeffery Swankowski

JUNIOR FEMALE SIX ENTRIES

1. Jeffery Swankowski
2. Jeffery Swankowski
3. Jeffery Swankowski
4. Wendy Long

NOVICE DELTA ELEVEN ENTRIES

1. Mike & Kathy Slater
2. Mike & Kathy Slater
3. Michael O'Leary
4. Mike & Kathy Slater

NOVICE TANK EIGHT ENTRIES

1. Mike & Kathy Slater
2. Mike & Kathy Slater
3. Mike & Kathy Slater
4. Michael O'Leary

NOVICE VEL FOUR ENTRIES

1. Bob Kewett
2. Bob Kewett
3. Michael O'Leary
4. Michael O'Leary

NOVICE FEMALE THIRTEEN ENTRIES

1. Mike & Kathy Slater
2. Mike & Kathy Slater
3. Mike Kewett
4. Michael O'Leary

BODYWAVE COLOR VEL (SEVEN ENTRIES)

1. Tom & Pat Allen
2. David GENE TAIT
3. Tom & Pat Allen
4. Tom & Pat Allen

HALF-BLACK VEL (THREE ENTRIES)

1. Gary Long
2. David GENE TAIT
3. David GENE TAIT

SNAKEVEL VEL (NINE ENTRIES)

1. M & M Gokhowski
2. Frank Hammel
3. M & M Gokhowski

SOLID VEL (THREE ENTRIES)

1. M & M Gokhowski
2. Frank Hammel
3. M & M Gokhowski

VARIEGATED VEL (THREE ENTRIES)

1. Jen Hsu
2. David GENE TAIT
3. David GENE TAIT

ALBINO FEMALE (THREE ENTRIES)

1. M & M Gokhowski
2. Gene Gokhowski
3. Gene Gokhowski
4. Gene Gokhowski

AOC FEMALE (THREE ENTRIES)

1. M & M Gokhowski
2. Gene Gokhowski
3. Gene Gokhowski
4. Gene Gokhowski

BLACK FEMALE (THREE ENTRIES)

1. Tim Peters
2. Tim Peters
3. Tim Peters
4. Tim Peters

BLUE/GREEN FEMALE (THREE ENTRIES)

1. David GENE TAIT
2. David GENE TAIT
3. David GENE TAIT

BRONZE FEMALE (THREE ENTRIES)

1. David GENE TAIT
2. Don Saunders
3. Don Saunders
4. Tom & Pat Allen

GOLD FEMALE (THREE ENTRIES)

1. Gene Gokhowski
2. M & M Gokhowski
3. M & M Gokhowski

HALF-BLACK AOC FEMALE (THREE ENTRIES)

1. David GENE TAIT
2. David GENE TAIT
3. M & M Gokhowski
4. Steven Sarkisowski

HALF-BLACK RED FEMALE (THREE ENTRIES)

1. David GENE TAIT
2. David GENE TAIT
3. M & M Gokhowski
4. Steven Sarkisowski

RED FEMALE (THREE ENTRIES)

1. David GENE TAIT
2. David GENE TAIT
3. David GENE TAIT

JUDGES: Paul Gorski, Gene Gokhowski, Mike Gokhowski, Stephen Kwarder, Gary Mousseau, Frank Ortega, Ed Richmond, Don Saunders, Terry Wasylyk, ASSISTANT JUDGE: Rudy Marshburn

OBSERVERS: Chuck Brown, David Carr, Linda Carr, Don Espinoza, Charlie Hall, Sandra Hall, Cathy Marshburn, Keith Patterson, Tom McDougal, Keith Patterson, Joe Rankin, Mike Slater, Tom Wendenhoef

SHOW SCHEDULE

FIRST HALF 1994-1995
SHOW SEASON

EAST COAST GUPPY ASSOCIATION

SHOW DATES

July 18 - 17, 1994

RULES DUE DATE

May 1, 1994

PAN PACIFIC GUPPY ASSOCIATION

SHOW DATES

August 6 - 7, 1994

RULES DUE DATE

June 1, 1994

NEW ENGLAND FANCY GUPPY ASSOCIATION

SHOW DATES

August 27 - 28, 1994

RULES DUE DATE

June 1, 1994

GUPPY ASSOCIATES INTERNATIONAL CHICAGO

SHOW DATES

September 17 - 18, 1994

RULES DUE DATE

July 1, 1994

GUPPY ASSOCIATES OF MILWAUKEE

SHOW DATES

November 4 - 5, 1994

RULES DUE DATE

August 1, 1994

JUDGING SEMINAR
ANNUAL MEETING

ALBINO DELTA (THREE ENTRIES)

1. Jim Alderson
2. Gene Gokhowski
3. Gene Gokhowski
4. Gene Gokhowski

AOC BICOLOR DELTA (THREE ENTRIES)

1. Gene Gokhowski
2. David GENE TAIT

BLUE DELTA (THREE ENTRIES)

1. Tom Humphreys
2. Tom Humphreys
3. Tom Humphreys
4. Jim Alderson

BRONZE DELTA (THREE ENTRIES)

1. Tom & Pat Allen
2. Don Saunders
3. David GENE TAIT
4. David GENE TAIT

GREEN DELTA (THREE ENTRIES)

1. David GENE TAIT
2. Don Saunders
3. David GENE TAIT
4. David GENE TAIT

NOV BLUE DELTA (THREE ENTRIES)

1. Tom Humphreys
2. Michael Busch
3. Michael Busch
4. Michael Busch

NOV PURPLE DELTA (THREE ENTRIES)

1. Stephen Kwarder
2. Ed Richmond
3. Ed Richmond
4. Stephen Kwarder

NOV YELLOW DELTA (THREE ENTRIES)

1. Elise & Marie Bryant
2. Gary Mousseau
3. Gary Mousseau
4. Gary Mousseau

PURPLE DELTA (THREE ENTRIES)

1. Ed Richmond
2. Joe Shyrer

RED BICOLOR DELTA (THREE ENTRIES)

1. Frank Ortega
2. Frank Ortega
3. Don Saunders
4. William Japarch

SNAKE VAR DELTA (THREE ENTRIES)

1. Joe Rankin

IMMORTAL SINGLE (THREE ENTRIES)

1. John Allen
2. Janet Schroder
3. John Allen
4. Wendell Price

ALBINO TANK (THREE ENTRIES)

1. Jim Alderson
2. Gene Gokhowski
3. Gene Gokhowski
4. Gene Gokhowski

AOC BICOLOR TANK (THREE ENTRIES)

1. Gene Gokhowski
2. David GENE TAIT

BLUE TANK (THREE ENTRIES)

1. Tom Humphreys
2. Tom Humphreys
3. David GENE TAIT

BRONZE TANK (THREE ENTRIES)

1. Tom & Pat Allen
2. Don Saunders
3. David GENE TAIT
4. David GENE TAIT

GREEN TANK (THREE ENTRIES)

1. Jim Alderson
2. Tom & Pat Allen

NOV BLUE TANK (THREE ENTRIES)

1. Michael Busch
2. Michael Busch
3. Michael Busch
4. David GENE TAIT

NOV PURPLE TANK (THREE ENTRIES)

1. Stephen Kwarder
2. David GENE TAIT
3. David GENE TAIT
4. David GENE TAIT

NOV YELLOW TANK (THREE ENTRIES)

1. Gary Mousseau
2. Gary Mousseau
3. Gary Mousseau
4. Elise & Marie Bryant

PURPLE TANK (THREE ENTRIES)

1. Gary Mousseau

RED BICOLOR TANK (THREE ENTRIES)

1. Frank Ortega
2. Frank Ortega
3. Don Saunders
4. William Japarch

SNAKE VAR TANK (THREE ENTRIES)

1. Bruce Long

IMMORTAL TANK (THREE ENTRIES)

1. Don Saunders
2. Don Saunders
3. Don Saunders
4. Don Whitner

AOC DELTA (THREE ENTRIES)

1. Dan Whitner
2. Karla Kammaw
3. Tyrone Burgess
4. Tyrone Burgess

BLACK DELTA (THREE ENTRIES)

1. Michael Busch
2. Michael Busch
3. Tom Wendenhoef
4. Tom Wendenhoef

BLUE/GREEN B DELTA (THREE ENTRIES)

1. Tom Wendenhoef
2. Tom Wendenhoef
3. Tom Wendenhoef
4. Tom Wendenhoef

GOLD DELTA (THREE ENTRIES)

1. David GENE TAIT
2. David GENE TAIT
3. David GENE TAIT
4. David GENE TAIT

H-B AOC DELTA (THREE ENTRIES)

1. Ed Richmond
2. Ed Richmond
3. Steven Sarkisowski
4. Steven Sarkisowski

H-B PARTIAL DELTA (THREE ENTRIES)

1. Joe Rankin
2. Don Saunders
3. Joe Rankin
4. Joe Rankin

H-B RED DELTA (THREE ENTRIES)

1. Jim Alderson
2. Jim Alderson
3. Gary Long
4. Chuck Brown

MULTI DELTA (THREE ENTRIES)

1. David GENE TAIT
2. David GENE TAIT
3. David GENE TAIT

RED DELTA (THREE ENTRIES)

1. David GENE TAIT
2. Tom Humphreys
3. Gary Mousseau
4. Jim Alderson

SNAKE SOLID DELTA (THREE ENTRIES)

1. Frank Ortega
2. Frank Ortega
3. Bob VanDenLangenberg
4. Bob VanDenLangenberg

IMMORTAL DOUBLE (THREE ENTRIES)

1. Frank Ortega
2. Ted Lobello
3. Ted Lobello
4. Wendell Price

YELLOW DELTA (THREE ENTRIES)

1. All Entries Disqualified

AOC TANK (THREE ENTRIES)

1. Tyrone Burgess
2. Don Whitner
3. Stephen Kwarder
4. Don Whitner

BLACK TANK (THREE ENTRIES)

1. Michael Busch
2. Michael Busch
3. Tom Wendenhoef
4. Tom Wendenhoef

BLUE/GREEN B TANK (THREE ENTRIES)

1. Tom Wendenhoef
2. Tom Wendenhoef
3. Tom Wendenhoef
4. Tom Wendenhoef

GOLD TANK (THREE ENTRIES)

1. Bob VanDenLangenberg
2. Bob VanDenLangenberg
3. Bob VanDenLangenberg
4. Bob VanDenLangenberg

H-B AOC TANK (THREE ENTRIES)

1. Steven Sarkisowski
2. Steven Sarkisowski
3. Stephen Kwarder

H-B PARTIAL TANK (THREE ENTRIES)

1. Jim Alderson
2. Don Saunders
3. Joe Rankin
4. Joe Rankin

H-B RED TANK (THREE ENTRIES)

1. Jim Alderson
2. Gary Long

MULTI TANK (THREE ENTRIES)

1. David GENE TAIT
2. David GENE TAIT
3. David GENE TAIT

RED TANK (THREE ENTRIES)

1. Jim Alderson
2. Jim Alderson
3. Gary Mousseau
4. Gary Mousseau

SNAKE SOLID TANK (THREE ENTRIES)

1. Frank Ortega
2. Bob VanDenLangenberg
3. Bob VanDenLangenberg
4. Bob VanDenLangenberg

IMMORTAL TANK (THREE ENTRIES)

1. Don Saunders
2. Don Saunders
3. Don Saunders
4. Don Whitner

YELLOW TANK (THREE ENTRIES)

1. Bob VanDenLangenberg
2. Bob VanDenLangenberg
3. Bob VanDenLangenberg
4. David GENE TAIT

NEW ENGLAND FANCY GUPPY ASSOCIATION INTERNATIONAL FANCY GUPPY ASSOCIATION TEN POINT SHOW AUGUST 27 - 28, 1994

SCHEDULE

SATURDAY, AUGUST 27, 1994

9:00AM 4:00PM Registration
9:00PM (until completion) Seminar and Judging Tent
4:00PM Judging
9:00PM (approximately) Awards Preparation
(Judging open to interested "observers" sign up during registration)

SUNDAY, AUGUST 28, 1994

9:30AM Fish Display Room Open To The Public
10:00AM Auction
12:00PM Debentching For All Exhibitors
(Debentching for out-of-state exhibitors (two hundred miles or more) can be arranged with Marilyn Johnson, Show Chairperson)

LOCATION

SHERATON HOTEL 508 475-7010

11 Beaver Street, Milford, Massachusetts 01757

DIRECTIONS

Exit 1B on Highway 495 (southwest of Boston), proceed one block on 106 West to U.S. 1A (Burger King on the right). Turn right on Beaver Street, the Sheraton Hotel is signed on left side of the street.

ACCOMMODATIONS

While reservations only through the Sheraton Hotel at 508 475-7010. August is summer vacation time in Boston and southern (domestic and international) usually makes it difficult to find rooms. Attention New England Fancy Guppy Association "the guppy club" or "the fish club" for discount rates of \$25.00 plus tax per room (same rate for one to four people per room).

SHOW CHAIRPERSON

MARLYN JOHNSON 508 388-3058

28 Warren Avenue, Amesbury, Massachusetts 01913

SHIPPED IN EXTRIES

80 Elm Avenue - Brockton, Massachusetts 01901

1. All shipped-in entries must be received BEFORE 8:00PM Friday, August 26, 1994 to be certain of being displayed.
2. While it is inspected, entries will be taken all day to receive entries. PLEASE ship fish in marine specifying NO SIGNATURE REQUIRED UPON DELIVERY. This eliminates the difficulty of trying to retrieve undelivered packages. Ship the Post Office/Post Freight Office on the weekend.
3. All shipped-in entries must include: Two copies of the entry form, back tags and "label" bands for return shipment of fish, return address label, separable check/label for return postage, and entrants telephone number.
4. Return shipment of fish will generally be sent by same carrier as they were received unless other arrangements are specified.

ENTRY FEES

SINGLE ENTRY	\$1.50
TANK ENTRY	\$2.50
BREEDER ENTRY	\$3.50
JUNIOR & NOVICE CLASS	\$1.50

GENERAL RULES

All entries will be judged by IFGA Judging Teams in accordance with IFGA Judging Rules and Standards.

1. All entries must be registered by 4:00PM, judging will begin at 5:00PM Saturday.

2. All entries must have been born and reared in the exhibitor's tank.

3. The exhibitor will determine the class of competition in which his entry is to be exhibited. Appointments will be available upon request at time of registration.

4. All entries must be identified with an identification tag and will not be judged.

5. Every reasonable provision will be taken to prevent the loss, injury or death of fish, however, the show committee and the New England Fancy Guppy Association cannot assume responsibility for any losses. Fish received dead, and fish which die on the beach will be properly disposed of unless it is indicated on your entry form that you want the fish DULX and DOB's returned to you. The change in traditional policy is to require the exhibitor of the show and the show committee and the show committee. Exhibitors have the right to have all fish returned to them at the show. That is not a change in the right. It is simply necessary to state on your entry form you want to receive fish right.

6. Fish may not be removed from the show prior to debentching without the permission of the Show Chairperson. All debentching will be done by designated members of the IFGA who will check the entries and return them to the exhibitor.

7. Please, decorative items, or colored water will not be allowed with any entries.

8. Lighting will be fluorescent under observation, as available in the display room.

9. Exhibitors must identify on their entry form if their entry is of fish written previously (a transfer of the same entry and if including age should be included with each male (a fish purchased).

10. Food and water will be provided. Please do NOT bring your own bowls or tanks.

ENTRIES

SINGLE ENTRIES

Single male and female entries will be shown in 1/2 gallon drum bowls. 3/4 filled with water. One female may be included with the male entry, but only one male will be judged.

TANK ENTRIES

Two related males shown in one gallon tank. 3/4 filled with water. One female may be included, but only one male entry will be judged.

BREEDER MALE

Two related males shown in one to three gallon tanks, 3/4 filled with water. Two females may be included, but only one male will be judged.

BREEDER FEMALE

Three related females shown in one to three gallon tanks. 3/4 filled with water.

AWARDS

1. IFGA Award Cards will be given for the first through fourth place in each class and Best of Show.

2. Trophy will be given for the Junior Class and Novice Class.

3. First Place in each class, Breeder male and Breeder Female will receive a cash award equal to 25% of the total entry fees for the respective classes.

4. Best of Show Male, Tank, and Female will each receive a trophy.

AUCTION

There will be an auction Sunday, August 28, 1994 starting at 10:00AM. Entries from the show will be available. The New England Fancy Guppy Association will retain 50% of auction proceeds.

CLASSES

DELTA
AFC
AFC BICOLOR
ALBINO
BLACK
BLUE
BLUE-GREEN BICOLOR
BROnze
GOLD
GREEN
HALF-BLACK AOC
HALF-BLACK BLUE
HALF-BLACK PASTEL
HALF-BLACK PURPLE
HALF-BLACK RED
HALF-BLACK YELLOW
MULTI
PURPLE
RED
RED BICOLOR
SHARKSKIN-GOLD
SHARKSKIN-VARIEGATED
YELLOW
JUNIOR & NOVICE

TANK
AFC
AFC BICOLOR
ALBINO
BLACK
BLUE
BLUE-GREEN BICOLOR
BROnze
GOLD
GREEN
HALF-BLACK AOC
HALF-BLACK BLUE
HALF-BLACK PASTEL
HALF-BLACK PURPLE
HALF-BLACK RED
HALF-BLACK YELLOW
MULTI
PURPLE
RED
RED BICOLOR
SHARKSKIN-GOLD
SHARKSKIN-VARIEGATED
SWORDTAIL DOUBLE
SWORDTAIL SINGLE
YELLOW
JUNIOR & NOVICE

VEIL
BODY/VEIL COLOR
HALF-BLACK
BLACK
BLUE
BROnze
GOLD
GREEN
HALF-BLACK AOC
HALF-BLACK BLUE
HALF-BLACK PASTEL
HALF-BLACK PURPLE
HALF-BLACK RED
HALF-BLACK YELLOW
MULTI
PURPLE
RED
RED BICOLOR
SHARKSKIN-GOLD
SHARKSKIN-VARIEGATED
SWORDTAIL DOUBLE
SWORDTAIL SINGLE
YELLOW
JUNIOR & NOVICE

FEMALES
AFC
ALBINO
BLACK
BLUE-GREEN
BROnze
GOLD
GREEN
HALF-BLACK AOC
HALF-BLACK BLUE
HALF-BLACK PASTEL
HALF-BLACK PURPLE
HALF-BLACK RED
HALF-BLACK YELLOW
MULTI
PURPLE
RED
RED BICOLOR
SHARKSKIN-GOLD
SHARKSKIN-VARIEGATED
SWORDTAIL DOUBLE
SWORDTAIL SINGLE
YELLOW
JUNIOR & NOVICE

BREEDER
FEMALE & MALE
SWORDTAILS
DOUBLE & SINGLE

INTERNATIONAL FANCY GUPPY ASSOCIATION CLEARING HOUSE LIST OF AVAILABLE BREEDING STOCK

JIM ALDERSON
20938 Golden Springs Drive
Diamond Bar, California 91765
(LETTERS ONLY)

ELVIS BRYANT
3438 Ashby Road
St. Ann, Missouri 63075
314 428-6364

FRANK CHANG
6740 Via Paris
Yorba Linda, California 92697
714 983-9339

FRED FRAGASSO
407 East 45th Street
New York, New York 10016
212 624-8770

WILL KLEN
2807 South 37th Street
Milwaukee, Wisconsin 53218
414 873-8804

KENNETH KUMPEL
1220 Twelve Oaks Road
St. Cloud, Florida 34771
407 862-4648

STEPHEN KWARTLER
1547 Madison Avenue
Bronx, New York 10468
718 628-6508

GARY MOURSEAU
39173 Marlin Drive
Sterling Heights, Michigan 48301
(LETTERS ONLY)

TIM PETERS
181 Old County Road
Coffeyville, Missouri 65241
314 987-2838

ED RICHMOND
40 Westinghouse Court
Staten Island, New York 10314
718 781-0186

JIM RUSSELL
55 Elm Avenue
Brockton, Massachusetts 01901
508 586-7834

STAN SHUBEL
5715 Midland Lake Drive
Hemel, Michigan 48042
313 484-4041

MICHAEL SLATER
1775 Capitola Drive
Wardens, Rhode 02887
414 482-0830

RYAN GOLDMAN
1400 S.W. 12th Terrace
Pembroke Pines, Florida 33067
305 433-1584

TERRY WATKINS
1834 Deer Creek Road
Cincinnati, Ohio 45415
(Letters only)

STEVE WELLS
837 South 7th Street
Milwaukee, Wisconsin 53214
414 774-0867

Steve, Green, Half-Black AOC's, Half-Black Blue, Red, Variegated Bicolors

Half-Black Purple, Half-Black Yellow

Black, Half-Black AOC's, Half-Black Blue, Half-Black Purple, Half-Black Red, Red Albino, Red, Shadblow

Blue, Purple, Red

Half-Black Yellow, Red Albino, Shadblow, Variegated Bicolors

Black, Blue, Green, Half-Black AOC's, Purple, Red Albino, Red

AOC's, Blue, Green, Half-Black AOC's, Half-Black Purple, Half-Black Purple, Multi, Purple, Red, Shadblow

Green, Half-Black Yellow, Purple, Red

Black, Purple

Albino, Blue, Half-Black AOC's, Purple, Red

Green, Half-Black Purple

Black, Half-Black Blue, Half-Black Purple, Red

Black/Green Bicolor

Half-Black Red, Shadblow

Purple

AOC Bicolors, Shadblow (Candy Single - Upper and Lower)

JUDGING BOARD MEMBERS

PAUL GORBAU
JIM ALDERSON
TOM ALLEN
MRS. LATELLA
HAROLD MORGAN
FRANK WATKINS
DAVID POLUNAS
STAN SHUBEL

ACCREDITED JUDGES

STAN SHUBEL
5715 Midland Lake Drive Hemel, Michigan 48042
PAUL GORBAU
232 Marsh Island Drive Chesapeake, Virginia 22033

DAVID SAUREN
2810 East Avenue Columbus Ohio 43204

TOM ALLEN
254 Crest Avenue Laramie, Wyoming 82001

TED LORELL
12877 Pleasant Grove Walnut Creek, CA 94597

TERRY WATKINS
1834 Deer Creek Road Cincinnati, Ohio 45415

HAROLD MORGAN
14107 Swanton Drive Houston Texas 77077

MRS. and CORIN LATELLA
5340 West Boulevard, Orem Utah 84057

DAVID and M. GOLANOWSKI
720 East Jackson Street, Miami, Florida 33138

DAVID POLUNAS
78 Newark Blvd. Newark, New Jersey 07102

MARLYN JOHNSON
28 Warren Avenue Amesbury, Massachusetts 01913

JIM KLEN
2807 South 37th Street Milwaukee, WI 53218

MRS. GOLANOWSKI
916 Johnson Avenue, Morris, Illinois 61202

FRANK WATKINS
1834 Deer Creek Road Cincinnati, Ohio 45415

JIM ALDERSON
20938 Golden Springs Diamond Bar, California 91765

FRANK CHANG
6740 Via Paris Yorba Linda, California 92697

FRANK BART
6631 Hildred Drive Diamond Creek, Illinois 60118

WILL KLEN
2807 South 37th Street Milwaukee, Wisconsin 53218

GARY MOURSEAU
39173 Marlin Drive Sterling Heights, Michigan 48301

JERRY MAGNIFIC
27 Wayne Place Jersey New Jersey 07110

JIM RUSSELL
55 Elm Avenue Brockton, Massachusetts 01901

STEPHEN KWARTLER
1547 Madison Avenue Bronx, New York 10468

PAUL BLOOM
2817 Cumberland Philadelphia, Pennsylvania 19125

JERRY and ROSE MAGNIFIC
284 Glen Haven Drive Philadelphia, Missouri 63101

STEVEN WELLS
837 South 7th Street Milwaukee, WI 53214

STEVEN GARCIBELLO
328 Parkview Mount Vernon, New York 10550

EDWARD RUSCHMACH
40 Westinghouse Court Staten Island, New York 10314

RON (D) VON
7501 East 10th Street Kansas City, Missouri 64119

GUPPY ASSOCIATES INTERNATIONAL OF CHICAGO INTERNATIONAL FANCY GUPPY ASSOCIATION TEN POINT SHOW SEPTEMBER 17 - 18, 1994

SCHEDULE

SATURDAY, SEPTEMBER 17, 1994

8:00AM - 4:00PM Registration
4:30PM to 7:30PM (approximately) Judging
& 8:00PM (approximately), Hospitality Room and Awards Presentation

SUNDAY, SEPTEMBER 18, 1994

9:00AM to 12:30AM Open To The Public
10:30AM Rules
11:00AM
12:30PM Debating

LOCATION

HOLIDAY INN
3401 Argonne Road
Rolling Meadows, Illinois 60008
708 258-5030

ACCOMMODATIONS

Room reservations can be made by calling the Holiday Inn direct, or by contacting Frank Barta at 708 852-8468. The Holiday Inn offers a complete indoor recreational facility that includes exercise room, game room, pool, sauna and whirlpool. Free shuttle bus and valet transportation from O'Hare International Airport located ten minutes away is provided by the hotel. Woodfield Mall, which is the largest enclosed shopping mall, is just five minutes from the hotel plus numerous other shops and restaurants are just a few minutes away. Room rates are \$85.00 plus tax per night.

SHOW CHAIRPERSON

FRANK BARTA
8521 Hillcrest Circle
Coomers Grove, Illinois 60618
708 852-8468 (home)
708 852-8468 (office)

SHIPPED IN ENTRIES

STEVEN GWATKOWSKI
6609 South Kildare Avenue
Chicago, Illinois 60628
312 735-7760

1. Prior notification of shipment would be greatly appreciated.
2. All shipped-in entries must be received no later than 8:00PM CST Friday, September 16, 1994. NO EXCEPTIONS!
3. Express Mail and Priority Mail are the only shipments that will be accepted. NO AIR FREIGHT SHIPMENTS WILL BE ACCEPTED.
4. Proper postage must be included for all return shipments. If the postage is included these entries become the property of Guppy Associates International of Chicago.

ENTRY FEES

SINGLE ENTRY	\$1.50
TANK ENTRY	\$2.50
BREEDER ENTRY	\$3.50
NOVICE CLASS	\$1.50
JUNIOR CLASS	\$3.50

GENERAL RULES

1. All entries must be registered by 4:00PM Saturday, September 17, 1994.
2. Judging will start promptly at 4:30PM Sunday, September 18, 1994.
3. All entries will be judged by International Fancy Guppy Association Judging Teams in accordance with IFGA Judging Rules and Standards.
4. All entries must have been seen and rated in the exhibition tank.
5. The exhibitor will determine the class of competition in which to place entry and is not to be changed. Amendments to classification will be accepted at time of registration.
6. All entries properly classified will be displayed and will not be judged.
7. Lighting will be provided by overhead fluorescent and high intensity overhead vapor.
8. Entry reservations given from all lot lines to prevent the loss of lot if lot Guppy Associates International of Chicago and two Holiday Inn. Judging Standards. Entries shall not be held responsible for any personal belongings, papers or items, personal effects, during or after the show. Exhibitor assumes all responsibility for loss. The fish room will be locked at 10:00PM and not reopened.
9. Fish will not be removed from the show area until Sunday, September 18, 1994 at which time a member of Guppy Associates International of Chicago will remove all fish from the show area and return them to the exhibitor. In case of special circumstances, arrangements will be made with the show chairman for earlier departure.
10. Animal welfare at all times will be observed. First Place and Best of Show International Fancy Guppy Association Award Cards will be given to owners of first and fourth place.

ENTRIES

SINGLE ENTRIES

All entries are to be exhibited in 1/2 gallon or larger tanks. No fish will enter. No gravel, garnish or decorative items may be used. One female is required with the male entries, but only the male will be judged. Bred will be accepted at no charge.

TANK ENTRIES

An entry will consist of two matched males. One female may be included but will not be judged. Entries will be judged in one gallon aquarium which will be supplied at the show site at no charge.

BREEDER MALE

An entry will consist of two matched males. Two females may be included but will not be judged. Entries will be judged in 2 1/2 gallon aquarium which will be supplied at the show site at no charge.

BREEDER FEMALE

An entry will consist of two matched females and will be judged in 2 1/2 gallon aquarium which will be supplied at the show site at no charge.

JUNIOR CLASS

The Junior Class is open to anyone under the age of thirteen years of age that has raised twelve or more fish. Bred will be accepted at no charge.

NOVICE CLASS

The Novice Class is open to anyone over sixteen years of age who has never won an International Fancy Guppy Association award, first through fourth. Bred will be accepted at no charge.

AUCTION

An auction will be held on Sunday, September 18, 1994 of show fish, plants and sundries to the Guppy Associates International of Chicago. All entries for auction must be brought to the auction by 10:00AM. Auction will be a 50/50 split with GAC retaining 50% and seller retaining 50%. Please note the Chicago area is very good for receiving high prices for your fish.

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HALF-BLACK PASTEL
HALF-BLACK PURPLE
HALF-BLACK RED
HALF-BLACK YELLOW
MULI
PURPLE
RED
RED BICOLOR
SNAKE-SKIN-SOLID
SNAKE-SKIN-VARIEGATED
YELLOW
JUNIOR & NOVICE

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AOC BICOLOR
ALBINO
BLACK
BLUE
BLUE/GREEN BICOLOR
BRONZE
GOLD
GREEN
HALF-BLACK AOC
HALF-BLACK BLUE
HALF-BLACK PASTEL
HALF-BLACK PURPLE
HALF-BLACK RED
HALF-BLACK YELLOW
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SWORDTAIL DOUBLE
SWORDTAIL SINGLE
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SNAKE-SKIN
SOLID
VARIEGATED
JUNIOR & NOVICE

FEMALES
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ALBINO
BLACK
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BRONZE
GOLD
HALF-BLACK AOC
HALF-BLACK RED
RED
JUNIOR & NOVICE

BREEDERS
FEMALE & MALE
SWORDTAILS
DOUBLE & SINGLE

TRIALS AND TRIBULATIONS OF A NOVICE GUPPY BREEDER

By Bud Clarke
Southern California Guppy Association

There is a story about my first aquarium. Please don't laugh (well you can if you want, but just don't laugh too loudly).

My wife and I went down to the local garden center about six weeks ago in order to buy a small shrubbery or two for the back garden (please, no "Bring me a Shrubbery" quotes). We ended up coming back home with a thirty gallon aquarium after taking an immediate liking to the idea of having some fish swimming around our living room.

We duly prepared the tank, according to the book, and stocked it with three fancy guppy red-males and three red females. The tank settled down very well, and with a little help from some additional commercial bacteria, quite quickly. We even noticed that a couple of snails had got in on the set, apparently on the back of some of the plants that we had bought. Then again, this couldn't be a bad thing, after all, they keep the tank clean, don't they?

After a while we introduced some more red males and female guppies into the tank to bring up the numbers and give the other fish something more to think about. After a few weeks one of the red males became listless, sickly and very weak, and one of the females started to look a bit on the large side. Unfortunately for the poor red male though, he strayed a little too close to the filter one day and came to a grim demise.

So now we were down to five red males and our six red females. Time for another change of water. We changed the water, and decided to alter the color scheme somewhat, and stocked up with four half-black red males and four half-black red females. The next morning we looked at our new stock of fish, and noticed some small bubbles on some of the leaves that looked a little strange. On closer inspection, we became convinced that we had some fish

eggs, quite how though we weren't sure since guppies are livebearers. This sort of thing doesn't happen to novice fish breeders does it?

We found, after hunting around the tank, four clumps of spawn!!! We left them be, not being quite sure what course of action to follow and decided to keep an eye on them. The next day there were only two clumps of spawn visible, so decided to separate the two remaining clumps of spawn and place them in a trap at the top of the tank. We were careful to build a trap that had some possibility of water through-flow, and painstakingly put together a contraption using some of my wives nylon tights and a plastic molding that I had lying around.

For the next four days we looked at the eggs growing while we tried to find out what they could be. We came to the conclusion that the red female that was a bit on the defended side had to be the culprit, after all it must have been pregnant, what with being overweight and all that! We made plans, rather like you make plans for your first kids, and got all excited about it (we

were in the process of making "guppy history" weren't we).

My wife noticed in a book that snails in the breeding tank should be removed, in order that they are prevented from eating fish spawn. So, in compliance, we removed both snails (there were three but one got washed down the bath after we gave the plants a clean-up one day) and placed them in a jar along with some gravel and a shoot or two to keep them company. The fish eggs were still growing, but certainly there was nothing swimming around yet and the date for hatching was gone. Were the eggs OK, or were they all infertile?

Our hopes of a successful brood of red guppy fry were still high until I got home from work one evening, looked at the snails and saw what looked to be a distressingly familiar sight of what I could have only described as fish spawn stuck to one of the leaves of the plant that had given the snails for company.

We are now eagerly looking forward to the hatching of our first brood of tank snails.

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GUPPY ROUNDTABLE

VOLUME 11 ISSUE III

THE OFFICIAL MONTHLY PUBLICATION OF THE

SEPTEMBER 1994

INTERNATIONAL FANCY GUPPY ASSOCIATION

TREAT THEM ALL THE SAME

By Captain Frank Orlos

My favorite football coach is Vince Lombardi. Vince Lombardi was the coach of the Green Bay Packers, and had tremendous success with his teams during the 1960's. The most interesting comment made about Coach Lombardi was by one of his players. When asked how the coach handled all the different personalities on the team, the player replied "Easy he treats us all the same, 'like dogs' Lombardi was a tough coach. He set the standards, if you did not meet up to them, you did not play on his teams.

The reason I am starting this article about guppies with a story about a football coach is because, just a parallel with guppy breeding. You see, anyone can raise batches of guppies and eventually produce a first place fish, maybe even a year of first places that might produce a class championship. The real test of a top notch breeder is one who is successful year after year. Vince Lombardi coached teams dominated professional football all through the 1960's. You cannot be successful year after year if you have to cater to each individual's needs. This is also true with show guppies.

If you start treating each tank special, as far as feedings or water changes etc. you then are trying to adapt to your fish. This may be possible if you are handling one strain and ten tanks, anything more than that and you can forget longevity in the hobby. You become a classic case of



DAPHNIA CULTURES

By Elizabeth C. McGinley
Western Guppy Association

There are numerous methods by which daphnia can be cultivated. The hobbyist can start a culture by using aquarium water that has some algae growth, as this is an excellent culture medium.

After adding daphnia, the algae content of the water should be kept up as much as possible. This can easily be done by keeping a bright light on continuously or by replenishing it with water from another tank or container that has a good start of algae.

In addition to the algae diet, the daphnia can be fed foods such as lettuce leaves, raw meat, yeast, etc. Care should be

exercised in feeding so that the water does not become cloudy as this will kill the daphnia.

An airstone should be kept bubbling at all times in order to eliminate the CO2, and a periodic twenty-five percent water change is recommended. Once the culture is producing regularly, periodic feedings of the daphnia to your fancy guppies are necessary in order to keep the culture from becoming over-populated.

Temperatures in the aquarium housing the daphnia culture can range from sixty to seventy-six degrees Fahrenheit.

That's all there is to it!

INSIDE THIS ISSUE

- 3 THE GALLOPING GUPPY GOURMET**
By Michael Juchacz
Here is a highly nutritious and tasty fish food recipe that costs about two dollars a pound to prepare.
- 4 LIVE FOOD FOR SEASONING FRY**
By Michael Juchacz
Find out why guppy fry will reap significant benefits from a varied diet during their weeks of their lives.
- 6 DRUG RESISTANCE IN FISH PATHOGENS**
By Beverly Davis, Ph.D.
For a number of years the word has been that some of the traditional medications do not work anymore.
- 9 GUPPY GENETICS: HYBRID VIOLENCE**
By Richard W. Fleming
Learn why crossing two unrelated strains of fancy guppies is always a game of chance.
- 12 WHY YOU CANNOT RAISE A GOOD SHOW GUPPY**
By Robert Udo
The most misunderstood species of tropical fish the hobbyist can get involved with is the fancy guppy.
- 14 AN INTERVIEW WITH OLEN PANTHEON**
By Jack Rosengarten
Repeat of an interview from twenty years ago from one of the most respected names in the hobby.
- 16 MY FASCINATION WITH FANCY GUPPIES**
Robert I. Davis
The person who gets into the guppy hobby must by nature have a strong interest in the tiny fish.
- 18 LIVE BREEDING**
By David Clarke
Most regard this method of breeding to be of related fish which come from their exhibiting devoted traits.
- 19 HIDDEN HORRORS**
By Stephen Metrix
Some breeders argue they practice a minimum of mal-intention because "if it ain't broke, don't fix it."
- 19 WATER CHANGES: HOW MUCH AND HOW OFTEN**
By Elizabeth L. McManamy
Seasoned guppy breeders know how important water changes are, but what about beginners?
- 21 SOME OF THIS, SOME OF THAT**
By Paul Gorski and Alan Shaker
Another column of thought provoking questions and thoughtful answers.
- 23 ACCUMULATIVE POINT TOTALS**
By Don C. Whitaker
Accumulative point totals for 1984-1985 show season through August 5, 1984.
- 24 EAST COAST GUPPY ASSOCIATION SHOW RESULTS**
By Don Lewis
Results from first show of 1984-1985 show season hosted by East Coast Guppy Association.

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The Guppy Foundation is published monthly except January/February.

Postmaster: Please send address changes to:
Pan Pacific Guppy Association
Business Office (boxed at)
11003 Culver Boulevard
Culver City, California 90230

Application to Mail at Second Class Postage
Rates is pending at Culver City, California.

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Subscriptions are \$20.00 per year for eleven issues. Foreign subscribers must add \$5.00 per year. Please use International money orders only. Allow six to eight weeks for delivery of first issue.

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two year out!

My first year in the hobby, 1975, I met Ed Porter, a fellow member of Guppy Associates of Greater Cleveland. Ed raised guppies the Vince Lombardi method, he treated them all the same. Ed Porter ran about seventy-five tanks mostly ten and twenty gallon tanks.

The first thing you noticed when you went into Ed's room was the vitality of his guppies. They would be swimming all over the tanks, looking for food, males chasing females, all were robust with large, wide caudals. This did not just happen for Ed overnight, he bred these qualities into his fish.

If when Ed was performing a partial water change he came up with a tank of split tails, these fish were culled on the spot. Ed was ruthless when it came to culling. Any imperfection and the fish were gone.

Ed believed in heavy water changes on all his fish, no special treatment to adult show fish, everyone was treated the same. The guppies had to acclimate to Ed and his conditions. This might mean losing many fish at first, but in the long run will pay BIG dividends.

If you go through two-to-three generations per year, within eighteen months you can drastically improve a strain of guppies. Most breeders today are picking the best looking males and females according to our point standards, they are not paying enough attention to the hardiness and vitality of their breeders. I think if some of us put a little more stock in this instead of just the looks of our breeders we would soon see a different fish on the show bench. This method may take a little more time but will make your job much easier and more enjoyable.

I'm going through some of the ups and

downs in my new fish room. Our house is new and this means new plumbing (copper). Some things that were routine in my old fish room have produced some negative results in the present one. Should I start altering my methods? Maybe pampering some tanks with adult show fish? If I did that I would drive myself crazy. Right now I am losing about sixty percent of my show males to twisted or split tails. I can assure you these males will never produce the next generations of my guppies. These males are brought to the pet shops, and their tanks are now available for the next batch of fry.

The breeders are chosen from the remaining forty percent. It may take my guppies another two years to adjust to the new fish room, but when they do the payoff will be worth it. I have been in the hobby for twenty years and plan on staying another twenty, with Ed Porter's techniques, it will be more enjoyable.

THE GALLOPING GUPPY GOURMET

By Michael Juchacz
Kings Aquarium Society

Here is a highly nutritious and tasty fish food that costs about two dollars a pound. Sounds good? It is one of the most foods I have known and I liked? If you are willing to go through what I did, I am sure you will think it is worth it. So here we go, first I went shopping and picked up the following items:

- 1 lb. Beef heart
- 1 lb. Cod fish fillets
1 lb. Liver
- 2 lb. Shrimp
- 12 oz. Carrots
- 12 oz. Frozen spinach
- 6 oz. Mixed baby food cereal
- 6 oz. Clams
- 2 Envelopes of unflavored gelatin powder
- 2 teaspoons vita-Chem liquid vitamins

Everything worked out quite well, only got a funny look from the cashier in the supermarket. One of those "what is this

world is he doing with it all" looks. If you do not own a blender buy one and present it to your wife as a gift. Once you have done all that, get everyone out of the kitchen, better yet, out of the house. Send them to the movies or something. When that is done, take a picture of the kitchen. This is the "before" photograph.

Take a knife, remove all the fat and veins from the beef heart and cut it into cubes, approximately one inch in size. Take the liver, have your wife's new blender ready and start crushing. Add water to the blender until you have a liquid about the consistency of honey. By this time the kitchen should look like a battlefield, blood all over. Now, do the same with all the other stuff and complete the color scheme, especially on the floor. Pour the ingredients into a pot and add the cereal and vitamins if you can find them in the mess. Stir well and I mean stir well. Add the gelatin and pour the mixture into a large pot and heat the whole thing. Do not cook or boil. You will notice small chunks begin to appear on

top. These can be eliminated by briefly blending the mixture again.

Now you are ready for filling. Use foam coffee cups with plastic lids. Fill them up (approximately fifty), let them cool down and put them into the freezer. The cup you use to feed should be kept in the refrigerator as the food will go bad very quickly and could poison your fish.

Now is the time to take the "after" picture of the kitchen but do not expect anyone to believe it. Now the most important part, telephone a friend and ask him to call you back in about fifteen minutes. About this time the front door should open heralding the return of your wife. Have the easy chair ready, she will need it. Reassure her not to worry, that you will clean everything up. By this time the telephone should ring. It is your guppy pal and he urgently needs your help in his fish room. The rest is obvious. You go and your wife cleans up the mess. Do not come home for about 30 well, you had better be later.

LIVE FOOD FOR REARING FRY

By Michael Scott
Northern California Guppy Association

Like most beginning aquarists, I normally fed my baby fish (usually fancy guppies) with very fine flake foods, often crushed between my fingers and the results were grossing for the species was raising. However, eventually reasoned that if my fry were doing this well on a flake food diet the first few weeks of their lives, they would reap significant benefits from a more varied diet.

The first type of food I tried was liquid fry foods sold across the counters of all pet shops. These foods worked but I did not get as good survival as I expected. It was too easy to overfeed, resulting in deaths before I realized what had happened and could change enough water to correct the problem that I had created. I wanted something better that would give me a high degree of survival of even the smallest fry and I would not have to worry about overfeeding and polluting my tanks. I have found that live foods are the answer for me and will never consequently throw away the culture. I now have as long as raise tropical fish.

The first live food I obtained was the vinegar eel (*Tubificoides*). This little nematode is easy to culture in a container of apple cider vinegar at room temperatures. The difficulty I have with this little creature is to separate the food from the culture medium. I eventually used coffee filters to filter the nematodes out of the vinegar but I find this method less than suitable. I still maintain the culture but have adopted other live food cultures that are as effective as the vinegar eel but easier to maintain.

A few months ago I obtained a small culture of *Paramecium* sp. (possibly *multiciliated*), one of the major components of the "infusoria" cultures frequently referred to in hobbyist books. I hope I never lose this food source and to ensure this, I have provided many hobbyists

in my club with starter cultures. I know it will be available locally if my cultures disappear grow the *Paramecium* in one gallon glass jar, no air, the top covered with a coffee filter held on by an elastic band. I feed the culture with dried split peas and replace the water with aged water each time I remove a cup of water-*Paramecium* culture to feed.

Like most beginning aquarists, I normally fed my baby fish with very fine flake foods

my young fry. I keep my cultures at normal temperatures and normally have three jars of culture growing at any given time.

A word of caution, beware, in this culture, a predator called Copepods. These small invertebrate animals feed on the *Paramecium* and come from untreated water, and were probably present as eggs or young when I obtained my culture. I carefully examine each culture jar at least once a week and when I observe large creatures swimming in stop-stop motion (the *Paramecium* appears as tiny dots moving slowly), filter my culture through a net made from a knee-high nylon stocking. The contents left in the nylon net are rinsed off in an aquarium of small fish and nothing is wasted. Copepods eggs pass through the nylon and in a week or two I have to repeat the process.

I recently tried rotifer pellets to see if the *Paramecium* would feed on this food. The

Paramecium did feed on the alfalfa but got a culture of green algae developing in the jar. This algae is also effective food for some fish so I now maintain two cultures. One culture is *Paramecium* alone and the other culture has a large amount of algae in it making it green in color but an excellent food source.

I utilize microworms (*Pangloss* *silicosa*) to supplement my *Paramecium* feedings about one week after the initial feeding program began. By this time the fry have grown big enough to take the larger microworms and mix the microworms into the cup of *Paramecium* before feeding to the fry. Raise the microworms in shallow clear plastic storage containers with lids and maintain four or five separate cultures of different ages to supply my needs.

The medium I use to grow this food is damp cornmeal, no more than 3/4 inch (1 mm) deep and mix this thoroughly every second or third week. Keep these cultures at room temperature and when need some microworms, simply wipe my finger across the top of the culture medium, picking up as many microworms as I want, washing them off into a cup of *Paramecium* or directly into the tank holding the fry.

I have observed no parasites or predators associated with the microworms and there

is very little objectionable odor. I have tried oatmeal as a culture medium but it develops a strong odor and is much less suitable than cornmeal. When the cornmeal medium breaks down and the production of microworms deteriorates start a new culture in fresh cornmeal using about one quarter of the original culture to inoculate the new culture. The old culture can be thrown away but if you belong to an aquarium club, donate or auction off those old cultures as starter cultures at the next meeting.

When the fry have grown large enough to handle newly hatched brine shrimp (*Artemia salina*) nauplii, begin feeding this food. Brine shrimp eggs are readily available at pet shops and are relatively easy to hatch this product. Store all brine shrimp eggs in my freezer until required for hatching. The viability of brine shrimp eggs will be greatly reduced if they are allowed to absorb moisture from the air and by rinsing the eggs in a freezer you will obtain maximum hatches as you continue to use the eggs. I use commercial aquarium salt and mix enough brine solution to partially fill a one gallon glass jar. I use a hydrometer to mix my brine solution to a specific gravity of 1.025. Add as many eggs as I expect to require nauplii in a three or four day period and add an airstone to keep the eggs circulating. Keep the brine shrimp

culture on a top shelf in the fish room but the temperature very seldom gets above seventy-four degrees Fahrenheit. The eggs take several days to hatch and they hatch over another couple days. When the eggs begin hatching, set up a second culture for my needs.

I prefer using live foods to raise my guppy fry because I feel live food cultures can best supply the needs of very small fry. Some young fish have difficulty in recognizing their food and capturing it. I believe that the movement of the individual animals in the live food culture stimulates the baby fish to chase and capture its food. As the fry get older they can be quickly trained to take prepared foods. One major advantage of live food is that uneaten foods continue active in the aquarium, available as food when the fry are hungry again and pollution of the water is virtually eliminated.

If you are satisfied with the results of prepared foods or you do not want to be bothered with the extra work of live foods, this article was a waste of your time. But, if you are a young aquarist who want to try something new or may want to raise small fry with the highest possible survival ratios, well gain some information from my notes. To those people, start your cultures of live food now before you need them and hope you have many happy hours raising fish.



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THE ABILITY OF BACTERIA TO BECOME RESISTANT TO MEDICATIONS IS WELL DOCUMENTED

For a number of years in the aquarium fish industry, the word has been around that some of the traditional medications just do not seem to work anymore. The common treatments of tetracycline or Oxylin are not what they used to be. Sometimes, this lack of effectiveness may be due to a misdiagnosis of the pathogen. *Ichthyospor* is the term for a disease-producing organism. Ichthyospor, the disease is not correctly identified, resulting in the incorrect drug treatment.

For example, excystozoal shedding of mucus may be due to a protozoal infection, such as *Chilodonella*, but this same sign also may be present in an infection with the body fluke *Gyrodactylus*. Even though the signs are the same, the parasites are not related at all. The use of Dylox in the situation may, in fact, be the wrong treatment if the protozoan is the actual cause of the problem. To complicate the problem further, bacterial infection or even poor water quality may produce a similar sign. Therefore, if effective treatment is to be rendered, it is most important that the pathogen be correctly identified. It is always better to treat the infection with a medication formulated specifically for the particular pathogen.

Unfortunately, this truly be easier said than done because many times the only way to make a proper diagnosis is to perform a microscopic examination of the fish tissue.

Few people in the aquarium fish industry and even fewer hobbyists have the equipment or training necessary to make this type of determination. Usually the hobbyist relies on a drug "cocktail" consisting of several medications just to cover all the bases. Although not a recommended technique, this type of

'shotgun' approach may not be totally incorrect if more than one parasite is present, as can often be the case.

Another approach to disease treatment is the "if one pill is good, two pills be better" tactic. His approach can lead to gross over-treatment that is not only harmful to the fish but is also harmful to the multiplying bacteria responsible for the biological filtration. After all, one such as

Many times, the disease is not correctly identified, resulting in incorrect drug treatment.

erythromycin and methylene blue are known to disrupt biological filtration, and overuse of these treatments can destroy the indispensable nitrification process. Several articles in previous issues of Guppy Roundtable have suggested that the drug doses recommended by some manufacturers are far below the therapeutic doses necessary for the effective disease treatment. Sadly, this may indeed be the case. On the other hand, second guessing the dosage to compensate is not the means to safe and effective treatment. This practice may result in a treatment dose several times higher than necessary, possibly doing more harm than good.

The problem of ineffective treatment may not be strictly a diagnostic one. Many reports have confirmed drug resistance in bacterial fish pathogens. However, this is not a problem unique to bacterial infections in fish. Antibiotic resistance also has been confirmed in both humans and

antibacterial disease. Some of the best-known examples of drug resistance are those of the gram-positive bacteria to penicillin, the malaria protozoan parasite to chloroquine and the mosquito to DDT.

More than ten years ago, reported the resistance of the body louse (*Gyrodactylus*) to the standard dose of organophosphate triethion. Triethion is the active ingredient in medications such as Dylor, Muralar and Combit. The effective dose of this drug reported in the literature at that time was 0.25 ppm (parts per million, one part is equal to one milligram per liter). This study used goldfish from ponds where organophosphates were applied for years. The suggested dosage of 0.25 ppm did not remove the louse. In fact, increasing concentrations were not effective until reaching dosages of 25 ppm or one hundred times higher than the initial recommended dosage (Journal of Wildlife Diseases, 9th, Volume Sixteen). Based on this research, another medication using a different mechanism of action was formulated.

The most frequent reports of drug resistance are not in penicillin infections, but rather in bacterial infections. Antibiotic-resistant bacteria are reported from all areas of aquaculture. Japanese studies report resistance of the bacteria *Aeromonas hydrophila* isolated from infections in carp, eel and rainbow trout. Reports from Europe include drug resistance of this bacteria from Atlantic Salmon in Scotland and carp in Germany. In this country, reports from an reef culture facility in South Carolina demonstrate a positive correlation between the use of nitrofurazone and the isolation of nitrofurazone-resistant strains of

Aeromonas hydrophila. Most of the examples of resistance are found in food fish culture, with fewer problems reported in the aquarium fish industry.

last year, the Western World Pet Suppliers Association (WWP S.A.) funded a study by our laboratory to determine what, if any, antibiotic resistance was present in different populations of aquarium fish. The question of whether the traditional drugs were as good as they once were needed to be addressed. The initial study focused on aquarium fish imported from Singapore. Working in collaboration with a local wholesaler over the course of five months, more than one hundred fish were sampled for the presence of the bacterial pathogen *Aeromonas hydrophila*. This organism is considered to be the most common, and the most important, bacterial problem in freshwater tropical fish.

To begin the study fish observed to have obvious external lesions (lacerations) or the medical term for an injury or wound) were sampled directly from the wound. Fish without lesions but displaying behavioral changes were sampled for the kidney. All of the fish were macroscopically examined for the presence of external and internal parasites. Many different types of fish were sampled, including catfish, cichlids, gouramis, discus, tetras and other

species. After samples were obtained, they were grown in plates containing a specially formulated solid medium designed to select for *Aeromonas*. After twenty-four hours of growth at 35 degrees Celsius (95 degrees Fahrenheit), colonies of *Aeromonas* appear as bright yellow spots on the plates. It takes another forty-eight hours to run twenty three biochemical tests to identify the

Most of examples of drug resistance are found in food fish culture, with fewer problems reported in the aquarium fish industry.

species of *Aeromonas*. Once it is identified, the susceptibility to antibiotics is determined. The process is a standard method that applies basically to various

antibiotics that are infused on small paper disks.

Each disk, containing a known quantity of the antibiotic, is placed on a solid medium. As the antibiotic spreads in the medium, they come in contact with the bacteria measured on the plate. If the antibiotic is effective, the bacteria are killed and a clear space, called a zone of inhibition, develops around the disk. It is not just the presence of the zone but also its size that determines whether the antibiotic is effective. The diameter of the zone is measured and compared with a standardized chart that gives the zone sizes that represent anti-viral susceptibility or resistance. Each antibiotic has a different range of zone sizes that determine its effectiveness. This process, from disk sampling to final zone determination, takes a week to complete.

For our study, we chose eleven antibacterial drugs that are used in all levels of the aquarium fish industry, from hobbyists to aquarists. In addition, a new antibacterial named Squalomycin, which is being developed

Have you succeeded in locating the source? Is it merely the popularity of guppy powder? Has anyone come up with a new guppy poole lure recipe guaranteed to increase the guppy potential of your fish? Does someone have a revolutionary water cleaning system in their lab? Is it merely whipping up a magic with a host of chemicals to annihilate the color of a guppy???

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Awarding Tail Editor
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outbreaks of *Aeromonas salmonicida* in salmonids outside of this country. The most effective antibacterial was the new quinolone Gatifloxacin. This is not surprising, it is not yet available and therefore the bacteria have not been exposed to it in their natural habitat.

Practices that prevent stress, such as maintaining proper water quality and nutrition, can help prevent stress-related bacterial infections from occurring.

There are many mechanisms by which bacteria can become resistant to antibiotics. Most often, the process involves a change in the DNA, the blueprint of inheritance that controls all cell functions. Antibiotic

For example, the generation time of the common human intestinal bacterial *Escherichia coli* (also known as E. coli) is just twenty minutes. After only a few hours, many millions of colonies can be cultured. However, the build-up of resistance usually takes longer in the environment, where exposure to several drugs can lead to multiple resistance.

The research on antibiotic resistance in bacteria is continuing. Currently our laboratory is investigating the resistance patterns in populations of domestic goldfish and testing new experimental antibacterials. Funding is provided by the WY W.P.S.A. and Atlantic Shovelworks.

For the tropical fish hobbyist, the best medicine is avoidance. Practices that prevent stress, such as maintaining proper water quality and nutrition, can help to prevent stress-related bacterial infections from occurring in aquariums. If treatment is required, a proper diagnosis and careful use of the medication in clean aquarium water will help to provide a safe and effective cure.

By Richard W. Fleming
Western Cancer Association

Most guppy breeders have heard the phrase, but few question the mechanism that makes it occur. Some may ask "If a

First a little background for you non-generalists (which means you guppy breeders can skip this paragraph). Anyone that says, "I am going to breed this best best female with that best or unusual male" is a generalist. Otherwise they would just dump all the fish into one

Now for some basic genetics. All characteristics are determined by genes. All genes are located on chromosomes, which are thread-like structures found in the nucleus of each cell. Chromosomes occur in pairs which is probably the most important feature of genetics. Each

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species has its own characteristic number of chromosomes. Guppies and humans have forty-six chromosomes, which are arranged in twenty-three pairs. Each parent contributes one of each pair to the offspring so that new pairings are created. The genes are inseparable from the chromosomes, like strings of beads, with two notable exceptions: namely mutations and crossovers. Mutations are where a new gene is formed, modified or destroyed.

Crossovers are where the chromosomes break so that a pair may swap halves. Genes which are located on the same chromosome are called linked genes and are usually thought of as inseparable with the exception of crossovers. The amount of mutations occurring in guppies is fairly high, which is why guppies have evolved into so many varieties. Crossovers are considerably rarer.

Some estimates of the number of genes for humans run as high as 300,000. That means that a "pure" human has 150,000 matched pairs of genes. You can see why only identical twins, which are descended from a single fertilization, look alike. A hybrid guppy then has the possibility of twice as many different genes as a pure strain. Of course this cannot even come close to being achieved since one of them wouldn't be a guppy. Most of the genes have to do with important characteristics such as body structure and body chemistry. Even if guppies have as many genes as humans, my guess is that no more than a couple of hundred have anything to do with size, shape and color. Even that estimate is an imposing number.

"What about inheritance? If we have two truly pure strains and you can see how unlikely that is from the above numbers, then all of the offspring (designated F₁ for the first filial generation) will be identical, for each will have the same twenty-three mismatched pairs of chromosomes. Each member of the F₁ received its chromosomes as the result of a random draw (in effect) from its parents, since the parents were pure, however, the results are always the same. A brother-sister mating of the F₁ is quite another

situation. Their offspring are called the F₂ and the number of possible chromosome makeups is enormous. Let's deal first with only one pair. Let's say the parents (P₁) have a chromosome pair designated "AA" in one and "aa" in the other parent. The F₁ would be designated "Aa". The F₂ could be AA, Aa or aa. That is three possibilities. Applying this to twenty-three pairs, the number of possible chromosome pairings in one individual is equal to three raised to the twenty-third power, which is in the order of 100 billion combinations. So if you liked the F₁ and it was due to an effect from all forty-six mismatched chromosomes, you have a 100 billion to one shot to again produce the same makeup in a single member of the F₂ or you could again cross the F₁. Even the best long shot player would pass up those odds.

You may have noticed that for a moment the discussion centered on individual chromosomes rather than pairs. If a characteristic is the result of two genes, each of which occupies one chromosome of a pair, then a pure strain can never be developed totally through the selection of breeders. The only hope for one parent to

pass on both genes to their offspring is for a crossover to occur which would put both genes on the same chromosome.

The most common hybrid sold today is probably the black lace angel. Anyone breeding them will discover that only 50% of the fry are black lace angels. The other 50% are divided between black angels and silver angels. If we look at this genetically, black angels are "BB" silver angels are "bb" and it turns out that black lace angels are "Bb". Anyone who tries to "purify" a strain of black lace angels through inbreeding will be very discouraged. For those who know, of course, they can sell these "strains". People buying the black angels or the silver angels will not be disappointed since they will breed true.

Suppose for the sake of argument that the above case was caused by two pairs of genes located on different pairs of chromosomes. Let's say the black angels are "AABB" and the silver angels are "aabb". The black lace angels are therefore "AaBb". Crossing the two pure (homozygous) strains will still yield 100% black lace angels, but what about the F₂? If you work out all possible combinations

you will find that only 1/16 of the F₂ are AaBb black lace angels. Another 1/16 are aabb silver angels and 14/16 are AABB black angels. What about the remaining 13/16 of the F₂ such as AABb, aaBb, etc.? In most cases they would probably be one of the phenotypes (having the appearance) of one of the three types. They could, however, be the "junk" you read about, a mixture of no worth. The breeder then has 3/16 stable fish and 3/16 culls in the F₂ and will almost certainly revert to maintaining only two pure strains (the black and the silver) and crossing them for any desired black lace. If you are very optimistic, these numbers may not discourage you, but remember that in guppies the males and females look different so that the breeding must be divided by two. So if you had eighty-four fry in a guppy litter, in an analogous case, only two would display the desired characteristics.

Now what about the hybrid vigor? Since the hybrid has more different genes than either of his parents, more characteristics will be evidenced. This is complicated by the fact that many genes are either dominant or recessive. The dominant genes will mask the effects of the

recessive genes. However if the F₁ has more genes for large size than either parent, it will be larger than them. Likewise, the genetic combination in the F₁ may increase the color intensity or alter the shape of the fins. More often than not, the hybrid will be of lesser quality since most inbred strains owe their characteristics to many recessive genes which were carefully separated from dominant genes in a controlled breeding plan.

There are at least three independent genes in guppies for the albino trait. That means that a guppy having any one of three possible pairs of albino genes is an albino. Some people have received the surprise of crossing two unrelated albino guppies and getting all gray fry. What happened was that the hybrid contained enough pigment genes to again display body color. If you consider albino strains to be weak, then this is an example of hybrid vigor. Of course, in this case a pure gray could eventually be evolved so this is not a unique characteristic present only in the hybrid. In the F₂ both types of albino will again appear and also some that are homozygous for both albino genes (a very weak fish).

Many multicolor fancy guppies are actually hybrids which display a very colorful combination of their unrelated but purebred parents. Many times a guppy breeder will cross two fish with the hope of producing a strain that has the best characteristics of both. The F₁ may even be just what is desired, but if the effect is due to hybrid vigor attempts to create a strain will fail.

My own experience with the above situation had to do with some snakeskin guppies. The dorsal fins were small which is a characteristic defect of snakeskin. I crossed a male snakeskin with a female from a red delta strain, which had large dorsals, and "achieved" my goal in the F₁. The F₁ had nice large dorsals. Then, after mating the F₁ sisters and brothers, all of the F₂ had the usual small dorsals of the snakeskin. Assuming I was dealing with multiple gene polygene pairs, I mated an F₁ male to another red female and again the results were perfect. Another try at the F₂ was equally bad. Several more backcrosses and F₂s finally produced some dorsal size but not as large as the red delta's dorsals.

Though inbreeding the quantity of different genes will slowly reduce as the strain becomes purer. Although the intent is to eliminate the bad genes, frequently some of the bad genes are concentrated. An outcross is then made to re introduce some genes which will offset the effects of the bad genes. This is also an example of hybrid vigor where it removes the strength of a declining strain. Many breeders use this method to assure their pure strains are not wiped out by an accumulation of bad genes. To maintain purity the cross is made to another branch of the same strain which had been raised separately for several generations.

Crossing two unrelated strains is always a game of chance and the results can only be determined after the fact. I recall the story wherein an old sage was approached by a well endowed young lady who asked him to father her baby. She said, "Just think of the wonderful possibility of a child with your brains and my body." To which he replied, "What happens if it has my body and your brains?"

WHAT IS AMMONIA?

By Linda Palmer
Western Guppy Association

Amonia is a very toxic by-product of fish waste, metabolic, uneaten food, or decaying organisms, such as dead fish. Ammonia, chemically, is a molecule made up of hydrogen and nitrogen.

Ammonia is always present in equal amounts and always occurs in two forms, toxic NH_3 (ammonia) and less toxic NH_4^+ (ammonium). As temperatures rise in the aquarium, each ten degrees Fahrenheit the fish lose ten percent of the less toxic ammonium into deadly ammonia. As pH rises and becomes more alkaline, a shift from pH 7 to pH 8 will raise deadly

ammonia nine hundred percent!

Ammonia can also be absorbed by aquarium water from window cleaning sprays or floor cleaning compounds used nearby. It would behoove hobbyists to take particular care when utilizing cleaning compounds in rooms containing aquariums. The life of your fish may depend upon it.

Studies have shown that very small amounts of ammonia can severely affect fish. Ammonia poisoning causes fish to become dark and lose their bright colors, causes poor appetites, and listless swimming. Large fish often overload the ammonia removing abilities of filters, making ammonia poisoning common with these large, -

WHAT IS CHLORAMINE?

By Linda Palmer
Western Guppy Association

Chloramine is a combination of ammonia and chlorine added to drinking water by city municipalities to disinfect drinking water. Chloramine is a very stable form of chlorine. When chlorine alone is used in the water supply, the chlorine may react in other ways aside from its intended use as a disinfectant. However, due to the stability of chloramine, side reactions are no longer a threat and the water is safely disinfected.

Just as with water treated with chlorine, water treated with chloramine is unsuitable for tropical fish. Once again, however,

due to the stability of chloramine, regular chlorinating products do not insure the complete removal of chloramine. Neither does exposing the water to sunlight nor allowing the water to stand for a period of time.

If chloramine is not regularly removed from the water in your aquarium, any fish present or added to the water will almost certainly die. Many researchers and scientists believe death is delayed to be due to ammonia created in the fish from exposure to chloramine. This occurs when chloramine is oxidized by the gills of the fish. From then on, the fish's blood is no longer capable of carrying oxygen. Depending on the amount of chloramine in your water, death of the fish may be quick or delayed.

By Robert Hicks
Greater Seattle Aquarists Society

Perhaps the most misunderstood species of tropical fish that the hobbyist of today can get involved with is the fancy guppy. If indeed you, an either an accomplished aquarist or as a complete novice in this avocation, ever meet a breeder who suggests that raising good quality guppies with any degree of consistency is an easy task and not worthy of the challenge, then be aware that this is a fool's paradise and you have just met one.

The hairy guppy of today presents a real challenge to all of us, advanced and novice breeder alike. Even though we might have a strain well established in our tanks, it is difficult enough to maintain it, let alone improve upon it. The guppy we read about in literature readily available today is a fascinating creature indeed. If we are to believe the books available on the subject we find that it is a species that:

1. Can be raised by anyone.
2. Can be housed in anything from a drainage ditch to the elaborate decorated tank in our living room.
3. Can be fed anything from table scraps to specially prepared diets.
4. Will breed and reproduce itself every twenty-two to thirty days and present us with multitudes of young so fast that we will not know what to do with all of them.

Unfortunately these bits of information are so far removed from the truth, so out-dated, that many prospective hobbyists drop by the wayside in frustration when things go wrong in their tanks. If we make one point clear. It must be that the fancy guppy of today is anything but the guppy we read about and find illustrated in the currently available literature.

While we must give proper credit and

respect to the breeders of yesterday" is the writer's contention that the guppy we are presently working with is far advanced from the guppy they were working with. If we take time to compare the writings of the old timers, do we not notice the multitude of inconsistencies in their technique? If we are to successfully follow in the footsteps of breeders such as Sam, Mahne, Hulter, Muk and many others who have left their mark on the hobby, the very least we need to work with is an up to date and viable data

*The fancy guppy
of today presents
a real challenge
to all of us,
both advanced
and novice
breeders alike*

Some points to consider when suddenly things go wrong in your tank and the answers are not to be found in your reference books, are as follows:

1. The fancy guppy of today is some forty to one hundred generations away from the guppy of your reference books. We cannot hope to estimate the number of genetic freaks and mutations that have taken place in these generations. Even the accomplished and respected geneticists of today are at odds on many facets of guppy breeding and heredity. So much so, that the hobbyist that studies their writings is perhaps the worst off for even trying to make his breeding program fit the results of their works.

2. Equipment and accessories available for your aquaria are much more scientific than what was available ten to twenty years ago. Aquaclo supply manufacturers are at long last giving some real attention to the proper equipment, filtration systems, medicinal products and yes even the tanks themselves. Advances in these areas have been great. In the past couple of years and no doubt we will see greater strides in the future.

Now that we have you completely mixed up, telling you that the data you find in the books is probably all wrong, or at the least out-of-date, where do you turn for information? The answer is really quite simple in that you need to join and become active in an active club which is either devoted to the guppy entirely or has an established guppy group working within its ranks. Here you will be able to meet with, ask questions of, and generally pick the minds of other breeders who are spending their time and efforts on the guppy. The chances are there is one or more members who have experienced the same problems that are troubling you and that they have the answers to your particular questions. Perhaps, they may not have a solution that will work every time, but at least they can point you in the right track so that with a little effort you, yourself will come up with the

11 - Lack of Patience

Perhaps the most important facet of any program planned to produce a top quality show guppy is patience. (Each step in your breeding program can be carried out with well-planned precision, but the fact remains that either the development of a new strain or the maintenance of an established strain requires a considerable amount of culling of stock, documentation, food preparation, selection of future breeders, tank maintenance, etc.,

All of this simply means that without the willingness on your part to devote the hours necessary to accomplish your goal, you are faced with a losing proposition.

Normal development and growth of a good show quality guppy (adult) show size will take some nine to twelve months; this means that you will not be able to actually select the best fish from a batch of fry for sometime, usually some six to eight months after birth. The breeder with the practical and knowing eye can usually find a particular male he is looking for at, say four to five months of age, after he is well-acquainted with the strain and knows its various characteristics during its early developmental stages. The unknowing breeder, however, must take additional time and wait further growth before he can make his actual selections.

All too often we find that the novice breeder is making his breeding selections in a manner which is entirely wrong if he is in turn attempting to raise a large, show-type guppy. Rather than making his selection from the fully developing males

is picking those who show their color and develop their finnage at an early age. This is fine if his goal is to raise a commercial type fish that will be suitable to sell as a local pet show or aquarium store at some four to six months of age. However, if he is truly attempting to develop a show guppy, this fish will not be attaining full maturity until it is from some eight to twelve months of age.

The writer has observed more than one hobbyist who has gone out of his way to obtain breeding stock from a breeder of some reputation. The normal result is that he finds that the offspring from his breeder are much slower to grow than anything he has ever had before. Quite possibly, the fry show little if any color even at three to four months of age and the unwary breeder simply throws them out thinking that they will not really develop into anything. Yet, with the true show-type strain, this is exactly what he should be looking for.

Again, PATIENCE is the answer. Take the time to:

1. Search out the stories you want; talk to and visit every known individual you can find.
2. Listen to and attempt to absorb every scrap of information you are able to glean from his answers to your questions.
3. Keep in touch with them periodically and give reports of your progress as well as your failures. He can and will generally be more than willing to make suggestions that can be of immense assistance in your program.
4. Use all these important RE-PATIENT

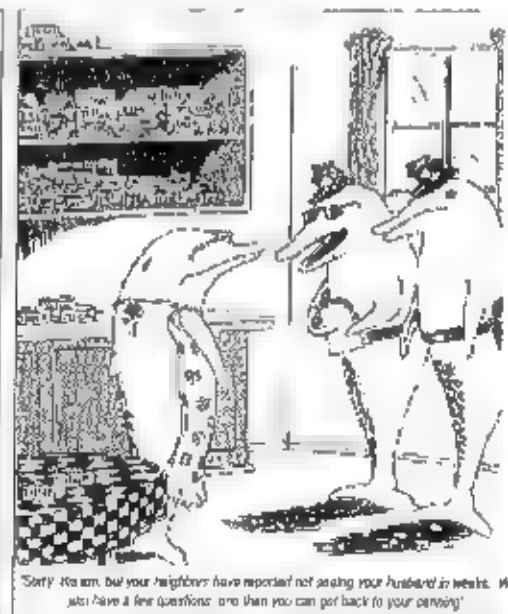
Remember, whatever strain you are working with represents some forty to fifty years of selective breeding by other hobbyists and breeders. You cannot make any significant improvement in a few nights. It may take you some four to five years to produce a noticeable change from what you started with. Without the patience and fortitude to carry your breeding program out to its final conclusion, you will seldom be listed amongst the winners at the end of any show.

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Pan Pacific Guppy Association
3616 Montana Avenue, Unit 2
Los Angeles, California 90034-5643



AN INTERVIEW WITH GLEN PARRISH

By Jack Rosenbaum
Reprinted from the Guppy Roundtable, May 1975

Question: Would you describe your fishroom and the setup?

Answer: My fishroom is a converted garage. It is fully insulated with fiberglass insulation. The lighting is all fluorescent and none of the lighting is directly over the tanks but instead is over the aisles between the rows of tanks. There are thirty-two of tanks in the fishroom. I use gas heating and due to the nature of this type of heating the top tanks will be the warmest. I prefer to keep the young fish in the warmer top tanks since this will promote growth. As the fish mature they are moved into the lower and cooler tanks. The oldest fish are in the coolest bottom tanks where they will live longer in the cooler water with fewer feedings.

Question: How much lighting do the fish receive?

Answer: The lights are turned on at eight o'clock in the mornings in my fishroom and they are usually turned out at eight o'clock in the evening unless happen to be working out there, in which case they will stay on until nine or ten o'clock at night. Generally speaking my fish get twelve hours of light a day.

Question: What are the sizes of the tanks that you used?

Answer: Most of my tanks are twenty-two gallon flats. For those of you not familiar with what a flat is, it is a square, shallow tank. The remainder of the tanks are either fifteen-gallon or ten-gallon tanks with only four five-gallon tanks out of the total of one hundred eighty-two tanks in the fishroom setup.

Question: What kind of filtration system is used, and what is the water change schedule?

Answer: I use maide filters with charcoal and Deoron floes. The filters are religiously changed every two weeks. Every four weeks the charcoal is thrown away and new charcoal is added. I change twenty percent of the water once a week, every week. With the exception of one filter per tank, and of course the guppies, there is absolutely nothing else in the tanks such as catfish, gravel, scavengers, snails or plants.

Question: In what size tanks are the fry reared and when are the sexes separated?

Answer: I raise the fry mostly in ten-gallon tanks. I have used five-gallon tanks, even are satisfactory for fry. In my opinion, if you get them out of there when they are a month old, separate the sexes, and put

them into larger tanks. When the fry are a month old, do sex them and the males are preferably put into a twenty-two gallon flat on the top level of my racks. If no flats are available at that particular time, I put them into a fifteen-gallon tank. The females, preferably, at the same time that they are sexed, are also put into a twenty-two gallon tank flat. I believe that to raise the very best male guppies they should not be crowded any more than one fish per gallon of water after they reach one month of age. Sometimes I exceed three limits myself, but I really believe that one-gallon per fish should be the minimum to obtain the very best male guppies.

Question: What is the feeding routine?

Answer: The fish are fed five times a day. My wife, Susan, feeds them during the day

while I am at my regular job. She gives them four of the feedings, one feeding every two hours, and these feedings are all dry food with the exception of the fry which are fed baby brine shrimp.

When I come home from work I then feed them once the following. Tubifex worms, brine shrimp, bee heart, or (during the warmer times of the year when I am able to obtain in them) live Daphnia. When the guppies are approximately five months old, they are moved to one of the cooler lower tanks in my fishroom, at the same time the feedings are cut down to three feedings a day and these feedings are very, very high feedings. I try very hard not to overfeed the fish at this point in their life. Overfeeding, as I am sure most of you are aware, will shorten their lifespan after they reach maturity.

Question: What is the breeding routine?

Answer: I select breeding stock when my fish are three months of age. Occasionally, I will drop that to an age level of two-and-a-half months of age. I prefer not to select breeders any older than three months since I feel that you can get into trouble this way. Usually when I am selecting guppies for breeding stock, I will choose approximately three males and seven or eight females which will be put into a breeding tank.

The breeding tank will be either a ten or fifteen-gallon tank. On very rare occasions I will use only one male, but this is very rare and for me to breed in the manner there would have to be a special set of circumstances. I feel that it is much better to breed a group of fish rather than a single male to a single female, or a single male to a group of females.

Question: What steps do you take to save the babies?

Answer: The pregnant females are moved into a breeding trap that is installed in a ten-gallon tank.

Question: How often do you select new breeders?

Answer: Usually I will take only one litter of fry from a given female. In other words I prefer not to depend upon only one female. In any given strain that I have will go through approximately three generations in one year for that particular strain. I am trying to move ahead with the improvement of the strains and this is the fastest way that I know in which to do it.

In my opinion, you just can not stay with one female or her litter and hope to progress. In my breeding program I will usually breed brother to sister for three or four generations and then outcross. This outcross is usually to a related strain, however, I do quite often make this outcross to an unrelated strain. I feel that many people nowadays, or even in the past for that matter, try to inbreed guppies for too many generations without an outcross. It is my belief that a guppy is going to only get to a certain size through inbreeding, and from then on it is going to be downhill.

Question: How do you select your breeding stock?

Answer: When selecting breeding stock from among my three-month old males I am looking for only one thing and that is the body size of that male guppy. I am not concerned the caudal or the dorsal at that age in a guppy. I am primarily interested in choosing a large-bodied fish and all other factors really are not taken into consideration at that time. In the selection of females for breeding stock I mainly go by the total size of the fish. On some occasions I will pay careful attention to the caudal color of the female but I do not always do this.

Question: What strains are you now raising and where did you get them?

Answer: At this time the strains that I am now raising or working with are purples, greens, snakeskins, half-black pastels, bronzes and yellows. I am primarily interested in solid color tails in the snakeskin strains and now have some green snakeskins and purple snakeskins

with solid color tails.

Some of these strains I have had a long, long period of time, many years in fact. Some of them were not really good fish at all when I first obtained them but, through careful inbreeding and outcrossing I have been lucky enough to obtain some fairly decent fish from most of these strains. I like to keep at least two and preferably three lines of fish going for every strain that I have and sometimes I might even have as many as four lines of a given strain. It really all depends on how much tank space I have available at any given time.

Question: What methods do you use for culling?

Answer: I am often asked "What do you do with your culls?" In all honesty I can say that I do not have any culls in the true sense of the word. At any time that you might visit my fishroom, I will show you tanks of males that are all show quality fish and they represent all of those born in my tanks. My fish are all good show quality guppies and I would be surprised if anything else showed up.

Question: What problems do you have with illness?

Answer: I have been very lucky not to have any illnesses in my tanks and probably would not know what to do if some of the fish got sick.

Question: Do you think raising guppies on such a large scale is worth all the effort?

Answer: Raising show type guppies involves a lot of hard work, patience and much time. If you are not willing to, or unable to, spend the time and do the work you cannot expect to get the best results. When you consider the effort and time involved to change filters, make partial water changes, maintain the feedings, etc., it really all boils down to just plain, old hard work. The reward for me in doing all of this work is the feeling of when I am lucky enough to produce a fish or a strain that is a winning fish or strain.

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We recently attended a meeting of a local aquarium society where the speaker of the evening made a comment that made me want to scream, to cry to laugh and to argue all at the same time. He said "raising guppies is easy". Anyone who is currently in the guppy hobby knows just how utterly untrue this comment is, and in this article we want to cover a few aspects of the hobby so that beginners are well warned of some of the pitfalls and the possibilities.

Anyone who gets into the guppy hobby must, by nature, have a sincere interest in this tiny fish, and read as much on the subject as possible, both old books and articles as well as new. From what has gone on before, this person will soon begin to get a good deal of work and research has already been done on the best ways to keep and raise these fish, and that over the years certain basic practices have evolved and become standard to the hobby.

One should try and follow such standard practices as described by the "pro" as closely as possible, to ensure that one's efforts have at least a medium of chance to succeed. This requires determination, perseverance and persistence on the part of the individual concerned; not to mention the greatest requirement of all, "courage".

Really good guppies come from breeding programs that sometimes take as many as four generations to complete, multiply this by an average of four to six months per generation and you could be looking at one and a half to three years work on a single strain or aspect. Good guppies do not just happen! They are produced by the knowledgeable application of

well tried ideas and principles, which are learned by reading, talking to other club members and often by one's own bitter experience.

The successful puppy breeder must have an inquisitive mind, ready to explore and experiment with newly conceived ideas, one must have a scientific approach and

available, how much personal time one wishes to spend, how large a budget one has to work with, and how much interest one's spouse has in the hobby. Since most people put family matters as priority one on their list, their success as guppy hobbyists tends to be largely dependent on the amount of time they can devote to it. The obvious tell-tale: neglected sexual displays, since guppies require segregation even from their species.

Anyone just starting in the hobby would do well to consider this and equip oneself with live, ten- and fifteen-gallon tanks and just mixing them in that order. To conserve space, tanks stacked side by side, and out, take up less space than face out. When stacking them on racks or shelves the smaller tanks should go on top and the larger tanks down below. If your set-up is relatively small, vibrator pumps to supply live oil to run filters and airstones also wouldn't be your choice. Whereas the larger set-up would need the use of pumps or compressors. Whenever you always shop around or get advice in regards to basic basics of equipment recommendations of those already in the hobby.

Many apparent "bargains" at special tropical fish store sales are anything but that. If you see a pair of tanks both of the same capacity but one costing only a fraction of the other, check out the thickness of the glass used to build them. You will soon discover the "bargain" tank is an inferior product and would have just as little lifespan.

The same is true of almost every item needed in the fleet room set up, the filters, valves, airline tubing, blowers, canopies, filters, radiators, stands, pumps, filter wools, charcoal, etc. all have their premium brands and their "bargain" equivalents. Unfortunately, as in almost everything one purchases in life there is never a substitute for quality. You get precisely what you are prepared to pay for. I personally look on the purchase of the my equipment.

*The person
who gets into the
guppy hobby
must by nature
have a
sincere interest
in this
tiny fish*

be ready to investigate the why's and wherefore's of success or failure. One must keep an open mind and never consider one's methods to be the "only" way.

Further, as one progresses in the sobriety one learns to be more observant of his flesh on a daily basis for only paying close attention to relatively minor details can one supervise meaningful businesses from those which are of minor consequence. One will soon learn to imperable nature from uncalculated behavior, youth from age, and health from sickness.

THE SET-UP

How deeply she gets into the hobby depends largely on how much support she

28. a. Lifetime investment and add quality equipment slowly as it becomes affordable to me.

THE ENVIRONMENT

Young fish need warm water at least eighty degrees Fahrenheit in order to develop rapidly for the first three months after which dropping the temperature to seventy-six degrees or lower seventy-two degrees will help them survive into longevity. So, deciding where to locate tanks is important and will require careful planning on your part. You may even

Want to locate parts of your set-up in different locations where a mix of temperature will be most easily accommodated. In my frequent visits to view the set-ups of fellow hobbyists, am constantly impressed by several common cautions.

Water is generally too cool and not changed regularly, especially with baby fish, when those things matter most.

2 Insufficient lighting of individual tanks, suppress (if, by) under any circumstances like living in the dark.

3. Inadequate air and filtration systems:
guy, you have to breathe and feel clear just like we do.

4. Inadequate provision of the right foods. growth depends largely on what was available was put into their systems (the bacteria controls their growth potential)

5 Ask of culling of supplies and obviously sick fish, you can not be too soft hearted in this area.

• Mixing of strains, so that inbreeding can and will usually result, a general

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unlike the fishroom and lack of personal organization (a total, or near total state of chaotic disarray). We have all suffered from this problem at one time or another but once overcome, guppy breeding can become a rewarding and satisfying hobby for people of all ages.

THE METHOD

Guppy breeding is an art, it is an art which can be learned from articles and from other breeders. These sources will give you lots of background theory. But mostly it is learned by trial and error and a very thorough schooling in the practical aspects of the law of genetics, i.e. Mendel's Law.

You do not have to be an expert in the science of biochemistry of a graduate Geneticist from Berkeley, Harvard, Johns Hopkins, Stanford or Yale, but one should read and digest as much literature on the subject as one can to become familiar with some of the terms used, such as the words: genes, chromosomes, recessive dominant, etc., etc., etc. Also, you should have some ideas and definitions firmly planted in your brain when one runs across this terminology in articles (it will make it infinitely easier for the reader to grasp the concept of the author's remarks and theories).

For me to go fully into various guppy breeding methods and techniques in this one short article is prohibitive, since space does not allow. To put it into its simplest terms, you choose mummy and daddy guppy from your stock, and then watch closely what the outcome. Fortunately, some breedings are predictable, unfortunately, others are not, that is what makes it both fun and interesting, because when you make a successful breeding you created it, and can justifiably be proud that your efforts have been rewarded.

The interest shown in your progress will become very evident from the rest of the "fraternity" and you will have a ready market for your spare stock (the upside to this outcome is obvious, selling

your spare stock will help to defray the cost of the hobby). Even your culls will be readily accepted at your local tropical fish store for cash, fish foods or fish room supplies.

Never be afraid to experiment with your breeding. If you have sufficient tank space in your fish room setup to see it through, who knows? You may lead the way to the guppy of the future. Each and every time it is working towards the one goal: the birth of a guppy which has yet to be bred (what an exhilarating challenge, are you up for it?)

SUMMARY
We tried to present a picture of a loving and rewarding hobby from the viewpoint of an old-timer fondly looking back. One can only say that the warm friendships and camaraderie generated by sharing a common interest are the advantages to be gained that last a lifetime and bring people together that otherwise might never have met. And we owe it all to one little wee fish—the guppy.
Are you to be an official "guppy-ophile"?

LINE BREEDING GUPPIES

By Ron Davis
Southern California Guppy Association

When the subject of line breeding is brought up, most fanciers regard it as the breeding of closely related fish which come from parents exhibiting desired traits. At first they will have some apprehensions about crossing their strains with other fanciers.

There is more to line breeding than just crossing related fish. It is a method which can be used to improve your stock and maintain a desired trait.

Select the two best (of your stock) and breed them back to the parents, mother with son and father with daughter. This fixes your strain.

Those two lines are now line bred with brother/sister crosses using the best pair from each successive generation for four to five generations. How many times your line depends on how robust your guppy breeding stock was to start with.

After your line has been tested for four or five generations, you can cross it with the male from one of the other lines, the male from one of the other lines, the male from one of the other lines, the male from one of the other lines.

By using your line to breed with the male from one of the other lines, this sequence can be continued indefinitely as in each unit of inbreeding you are building up a sense of generations of fish which are only distantly related to each other. Each generation has the effect of bringing in unrelated stock.

If you remember to frequently select a cull, select and cull, and to maintain your parallel lines for your crosses, you can improve your guppies immensely in a few generations. I can not stress the importance of selective culling in your breeding regimen enough. It is the key to successful guppy breeding.

HIDDEN HORRORS

By Stephen Monte
Southern California Guppy Association

I am sure most of you have things in your life far more important than fancy guppies. Maybe not substantially more important, but everyone has times when the tanks get a little less attention than they deserve. Sometimes drastically so. The inevitable result of this neglect is the loss of a single specimen at best, and complete wipeouts at worst.

There are those that will argue that they practice a minimum of maintenance because "if it ain't broke, don't fix it" and that they "never" lose fish. These same people never change the oil in their cars because they buy a new one when the warranty is up anyway. It is thinking like this that lends credibility to the usually overblown claims of animal rights activists.

As for the guy who never loses fish, let's find him and vote him "Guppy Breeder of the Year." I would like to meet him to avoid sounding like a complete male chauvinist pig. I suppose I should say HER also, so I have an idea what I am doing after almost thirty years with my little aquatic friends and I lose guppies with alarming regularity. Sometimes there is an obvious reason, sometimes a fish dies amongst a tank full of seemingly robust and healthy tankmates. It is this mysterious death that begs for an explanation.

WATER CHANGES: HOW MUCH AND HOW OFTEN

Some people think that changing the water in their tanks is a simple task. They just turn on the tap and let the water run for a while. This is a common mistake. The water in the tank is not just water, it is a complex solution of chemicals and minerals. The water in the tank is not just water, it is a complex solution of chemicals and minerals.

that you leave your filter running, which is an incredible waste of water. Especially if you are changing water more than once a tank. When water changes are done on my tanks, a siphon pump is used to clean the gravel and remove water. Then the filter is used to replace water. When the water is changed, make sure the pH and the hardness is the same as the tank water and check the pH and hardness before adding the water to the tank. Even if the water coming out of your tap is usually soft water, it is important to test the water before you add it to the tank. You should also test the water before you add it to the tank.

When a guppy dies for no apparent reason, and a quick check of the pH, temperature and nitrogen compounds shows no abnormal parameters, if the tankmates all appear healthy, the death is often written off as "old age" or my personal petshop favorite, "Maybe he got fish cancer." My own opinion is that the overwhelming majority of fish deaths, and in fact pet deaths, arise from some form of neglect, as opposed to real natural causes. Further, the more stock the pet, the more likely it is to die before its time. This may sound overstated, but nothing in my twenty-five plus years in the pet business has proven to me otherwise. There are a lot of ignorant people out there who either can not or will not hear and do what it takes to take care of a given specimen.

I have a lot of experience with this. I have a lot of experience with this. I have a lot of experience with this. I have a lot of experience with this. I have a lot of experience with this. I have a lot of experience with this.

It is better to change the water in a tank once a week than to change it every day. The water in the tank is not just water, it is a complex solution of chemicals and minerals. The water in the tank is not just water, it is a complex solution of chemicals and minerals.

Not you, you say? How many among us can say they have never lost an aquarium inhabitant because the setup was a long standing tank and the other fish killed it, or that the fancy guppy breeding stock was new to the market and the shop owner (or anyone else for that matter) did not know the requirements to take care of it?

What can we do? Learn and adapt. This club and those like it across the country are of great benefit to the guppy hobby. Come here, do not go to the pet shop for technical information. The typical shop employee is a kid whose been coming to the shop for ten years and can recite the two minute nitrogen cycle rote. These criteria plus the fact that he will work for minimum wage and a discount make him an expert, selling

equanimity to the masses. We can only hope the masses get correct basics from this big bird can read.

Learn all you can of club meetings and through books and periodicals (the Guppy Roundtable is an invaluable publication that contains numerous informative articles every month). The big three general aquarium magazines, *Aquarium Fish Magazine*, *Freshwater and Marine Aquarium* and *Tropical Fish Hobbyist* do have valuable information between the numerous advertisements. Share this information at club meetings, and anywhere you meet a novice guppy breeder seeking help. Again, explain the benefits of the guppy society. The people here are not looking for a quick dollar. If there is money to be made by working in a guppy club, have no figured it out. These people are here because they love fancy guppies, plain and simple.

Now on to what you can do at home to expand your own systems:

Keep a Log: The most important thing to do for my fish room is to keep a log of activities, events, and everything else that happens in the fish room. Remember, information is power and having the exact date and percentage of the last water change and the pH and temperature at the time keeps you from kidding yourself that you did a water change "just a couple of days ago."

More important things that happen: Do not limit it to the addition of new fish or the eighteen hour power failure. A pump that loses its prime and therefore stops pumping water can cause real problems for a biological filter in a matter of a few short hours. The effects may not be seen for weeks or even months until the water chemistry gets out of whack.

Keep up on Maintenance: I can not count the number of times I have heard a hobbyist (both advanced and novice) say that the fish they have at home are fine but every time they buy a new guppy it dies, or worse, the new fish got sick (or some other equally catastrophic disease pathogen) and killed everything in the tank.

The reason for this scenario is simple. The water quality in the hobbyist's tank is marginal to poor with low pH, high DOCs, etc. The fish survive because they have gotten used to the conditions over time. The new show quality guppy purchased from the award winning breeder was raised in optimal conditions (we hope), and when introduced into the hobbyist's tank, the change to poor conditions combined with the stress of handling cause the fish to get sick and die. If the conditions are poor enough it is likely that the other inhabitants are under stress and therefore also succumb to the disease. Most disease organisms are very opportunistic always present looking for victims with resultant low resistance.

Do not get complacent: The last point to make is that as mentioned before, everyone has a moment when things more important than fish come first. Just because you get away with low maintenance for a while or think you are getting away with it, do not let it become habit. The results can only be hidden horrors.



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SOME OF THIS, SOME OF THAT

By Paul Gorski, Judging Board Chairman
Stan Shubel, Former President
International Fancy Guppy Association

Question: Do the fancy guppies of today show vast improvement over the fish you first raised? If so, what qualities have improved? What qualities need improvement?

Bruce Jung

STAN SHUBEL: Overall the fish are greatly improved. Both caudal and dorsal finnage are much more consistent to the judging standards. Looking back, probably the poorest fish being shown today are better than the ones started with years ago. Body color is one area that needs improvement.

Question: How much salt do most guppy breeders add, per ten gallons of aquarium water, to their tanks? My fish do not seem to like it when I add more than two teaspoons per ten gallons. They scratch their gills on the bottom of the tank when more salt is added.

Hondo Evans

PAUL GORSKI: I do not believe there is a set standard for the amount of rock salt breeders add to their guppy tanks. If your fish do not react well to two teaspoons of salt per ten gallons of aquarium water, try reducing the amount of salt until you reach a level that is compatible with your particular strain of guppies.

Question: What foods do you recommend for the average hobbyist to use to feed his/her fancy guppies to maximize their growth potential?

John Caldwell

STAN SHUBEL: I have tried just about everything that swims, floats or flies for fish food and now just feed two different blends of dry food (my own, of course) and live baby brine shrimp. Once in a while I will

feed frozen adult brine shrimp. I would recommend at least two different types of dry food fed alternately. It also is best if you feed dry food first and allow working a few minutes feed the live brine shrimp.

Question: Do you believe there is any value from obtaining additional genetic diversity from wild guppies?

Elaine Pay

PAUL GORSKI: No, a huge step backwards in my opinion. With so many strains out there to cross with why go back to "square one?"

Question: When did you first begin raising show guppies? What color(s)? How many tanks?

Richard Fleming

STAN SHUBEL: I first began raising guppies in the early 1960's when mostly sold fish to other people for them to show. My wife, Ethel, told me this was dumb as these people were taking the credit for fish I had raised, and I had to agree with her. I started off with a few tanks and worked up to seventy-five tanks.

Question: Why do you have a fascination with fancy guppies? Why not some other species?

Laura Palmer

PAUL GORSKI: Guppies fascinate me because unlike most other tropical fish, the breeder has some control of the product. In many other species the breeding and raising process reveal changes and you look at the same tank population year after year. But, with our guppies, you can evaluate a cross within months. It is not instant gratification, but in the tropical fish world, it is close.

Question: What temperature(s) do you consider ideal for raising show guppies?

Michael Scott

STAN SHUBEL: You have two options, at eighty-to-eighty-two degrees the fish will grow rapidly but with a shorter life span. At seventy-two-to-seventy-four degrees they will take longer to mature but will live several months longer. Also, generally with the cooler temperatures you can extend the show life of the fish.

Question: What kind of breeding program would you suggest for the small breeder with, say, twelve tanks and one strain of fish? That is, should the hobbyist line breed, or attempt to maintain outcrossing lines?

John Caldwell

PAUL GORSKI: Your setup should allow both line breeding and the occasional outcross. How you manage your tank population is limited only by your imagination.

Question: What water changing schedule do you practice?

Bud Clarke

STAN SHUBEL: I would like to change twenty-five percent of the water on a weekly basis, however my schedule only allows me to do so every other week.

Question: Guppies seemed to have been more popular in the 1960's than waned somewhat. Is this simply fashion in fish, or are there factors that have affected guppies popularity?

John Caldwell

PAUL GORSKI: I think the popularity of guppies was greater in the 1960's because economically it was easier to have a setup. Water, electricity, gas were all cheaper and a fish room did not cost as much to maintain. Our society has exploded into an external entertainment one and as we all know, a fish hobby keeps you close to home.

MESSAGE FROM THE EDITOR

The following message had appeared in the Guppy Roundtable on several occasions, most recently the May 1994 issue. Unfortunately, every month still receives telephone calls from subscribers complaining that they have not received their current issue. Telephone calls to me do not eliminate the problems you are experiencing with mail service from your local post office. The Guppy Roundtable is mailed by the post office. It is not possible to include your name, address, and phone number on the mailing label. Please take heed of their requirements.

I am aware that in certain regions of the country delivery of the Guppy Roundtable remains sporadic. At the current Editor of the Guppy Roundtable, we are committed to promptly mailing each monthly issue to ensure timely delivery to all of our readers.

The Supervisor of the Post Office Mail Department at the General Mail facility from which the Guppy Roundtable is mailed, is being very cooperative with

my efforts to ensure timely delivery of our newsletter. She requests that any subscriber that receives their issue more than seven days from the date which it was mailed, receives their issue in poor condition or does not receive their issue to send me a note via telephone call, can not take my answer machine down to the post office, advising me of the problems you are experiencing. Be sure to include your name, address, and phone number.

She will contact the Postmaster of the problematic post office to advise them that the Guppy Roundtable is coming through their mail facility on a monthly basis, and it should be delivered, handled and treated as "Second Class Mail".

A limited number of issues are printed each month and do not have extra copies to send subscribers if their issue has not its way in the mail. Please be advised your subscription will be extended one month if you notify me in writing that you did not receive a particular issue.

International Fancy Guppy Association Officers

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70835 Golden Springs Drive
Davenport, Iowa 52814

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OFFICIAL INTERNATIONAL FANCY GUPPY ASSOCIATION ACCUMULATIVE AWARD POINT TOTALS 1994 - 1995 SHOW SEASON THROUGH AUGUST 15, 1994

DELTA CLASSES

ALL-BLACK	ADD	AGG BICOLOR	BLACK
1 Dwight Patton 440	1 Jan Whitman 560	1 Steve Webb 880	1 Tim Peters 1,320
2 Jim Alderson 400	2 Tanya Burgess 480	2 Davidene Tail 100	2 Tom Wendenkuler 360
3 Ed Whitman 280	3 A. van der Langerberg 40		
4 Gene Gokowski 200	4 Stephen Kwartier 120		

BLUE/GUPPY BICOLOR	BRONZE	GOLD
1 Jan Whitman 300	1 Tom & Pat Allen 840	1 Van Der Langerberg 240
2 Tom Humphreys 280	2 Davidene Tail 200	
3 Tom & Pat Allen 100	3 M & M Gokowski 80	
4 Davidene Tail 80		

HALF-BLACK	HALF-BLACK AGG	HALF-BLACK BIE	HALF-BLACK PINKIE
1 Dwight Patton 700	1 Stephen Kwartier 840	1 Jan Alderson 1,220	1 Jan Whitman 1,440
2 Jim Alderson 600	2 Jan Alderson 220	2 Dan Linn 100	2 Craig Smith 70
3 Jerry Magnuso 320	3 Ed Whitman 100	3 Stephen Kwartier 60	3 Van Frijnsen 80
	4 Fred Burgess 20		
	4 Gary Mountaine 120		

HALF-BLACK PURPLE	HALF-BLACK RED	HALF-BLACK YELLOW	MULTI
1 Ed Whitman 340	1 Jan Alderson 1,000	1 Gary Mountaine 1,120	1 Fred Burgess 480
2 Davidene Tail 200	2 Craig Smith 220	2 Eric & Marie Blythe 500	2 Dwight Patton 280
3 Stephen Kwartier 80	3 Tom & Pat Allen 200		3 Jan Smith 220
	4 Davidene Tail 80		4 Mike Knud 200

PURPLE	RED	RED BICOLOR	SHARKSKIN GOLD
1 Jan Alderson 600	1 Jan Alderson 540	1 Tom Dingwall 000	1 Frank Baris 600
2 Van Der Langerberg 240	2 Tom Humphreys 500	2 Craig Smith 300	2 Van Der Langerberg 80
3 Eric & Marie Blythe 200	3 Davidene Tail 200	3 Frank Olson 100	
4 Ed Whitman 100	4 Dan Whitman 200	4 Tim & Andrea Wagner 120	
5 Dan Whitman 100			

SHARKSKIN VARIETAL	HYBRID	YELLOW	JUNIOR OVERALL
1 Michael Brown 800	1 Eric & Marie Blythe 1,240	1 Van Der Langerberg 840	
2 Pat Allen 100	2 Steven Wolf 540		
	3 Rob Rensch 340		
	4 Dan Whitman 340		

VEIL CLASSES

BODY/VEIL ORLEN	HALF-BLACK	SHARKSKIN	SHARKSKIN CAUDAL	VARIETAL CAUDAL
1 Tom & Pat Allen 420	1 Bob Rensch 180	1 Ed Whitman 300	1 Cape Robinson 140	1 Bob Rensch 180
2 Gary Mountaine 40	2 Davidene Tail 100	2 Michael Brown 80	2 M & M Gokowski 140	2 Steven Wolf 180
			3 Jerry Magnuso 100	3 Craig Smith 400
			4 Craig Smith 100	

FEMALE CLASSES

ALL-BLACK FEMALE	ADD FEMALE	BLACK FEMALE	BLUE/GUPPY FEMALE	BRONZE FEMALE
1 Gene Gokowski 260	1 Davidene Tail 240	1 Davidene Tail 280	1 Davidene Tail 280	1 Jan & Pat Allen 320
2 Frank Baris 220	2 Gene Gokowski 100	2 Tim Peters 100	2 Davidene Tail 100	2 Gene Gokowski 200
3 M & M Gokowski 80	3 Luke Rensch 40	3 Tom Wendenkuler 80		

GOLD FEMALE	HALF-BLACK AGG FEMALE	HALF-BLACK RED FEMALE	RED FEMALE
1 Gene Gokowski 180	1 Davidene Tail 240	1 Frank Baris 240	1 Davidene Tail 460
2 M & M Gokowski 160	2 M & M Gokowski 140	2 Irwin Bolcom 80	2 Frank Baris 100
	3 Steven Wolf 100		
	4 Tom Humphreys 80		

GRAND OVERALL MALE

1 Jim Alderson 6,150
2 Jan Whitman 7,500
3 Craig Smith 640
4 Davidene Tail 600
5 Tom & Pat Allen 460
6 Frank Baris 380
7 Bob van Der Langerberg 240
8 Steven Wolf 40
9 Stephen Kwartier 120
10 Eric & Marie Blythe 1,040

GRAND OVERALL FEMALE

1 Davidene Tail 2,000
2 Jan Whitman 720
3 Craig Smith 400
4 Tom & Pat Allen 220
5 M & M Gokowski 260
6 Frank Baris 180
7 Dan Linn 100
8 Tom & Pat Allen 40
9 Tom Humphreys 80
10 Tom Wendenkuler 80

BREITOTR MALE

1 Jan Alderson 1,040
2 Michael Brown 300
3 Bob van Der Langerberg 260

BREITOTR FEMALE

1 Dan Whitman 840
2 Dan Linn 100

NOVICE OVERALL

1 Craig Smith 2,40
2 Ed Whitman 80
3 Frank Baris 40

Accumulative Point Totals Courtesy of
64 Dan G. Whitman

GET SMART

INTERNATIONAL FANCY GUPPY ASSOCIATION "OFFICIAL RULES & JUDGING STANDARDS"

THE NEWLY REVISED EDITION OF THE INTERNATIONAL FANCY GUPPY ASSOCIATION "OFFICIAL RULES & JUDGING STANDARDS" IS NOW READY FOR DISTRIBUTION. LEARN ABOUT ALL OF THE CHANGES THAT HAVE BEEN ADDED SINCE MAY 1988. IF YOU ARE SERIOUS ABOUT SHOW GUPPIES, THIS BOOK IS A NECESSARY AND AN INVALUABLE LEARNING TOOL. THESE BOOKS ARE SERIALIZED SO THAT FUTURE CHANGES CAN BE INCORPORATED INTO YOUR BOOKLET. ORDER BY MAIL. THE PRICE IS \$12.50, WHICH INCLUDES FIRST CLASS MAIL POSTAGE.

PLEASE SEND YOUR CHECK OR MONEY ORDER PAYABLE TO THE IFGA IN CARE OF:
RORY BOLCOMB

1400 SW 124TH TERRACE, APT. 102
PEMBROKE PINES, FLORIDA 33027
QUESTIONS? (305) 423-1854

BE UP TO DATE AND FULLY PREPARED FOR THE COMPETITION

EAST COAST GLPPY ASSOCIATION SHOW RESULTS

JULY 16 17 1994
FOUR HUNDRED SIX ENTRIES

BEST OF SHOW TANK

- | | | | |
|------------------------------------------------|-------------------------------------------|-------------------------------------|-----------------------------------|
| FIRST PLACE
JOE HANKIN
HALF-BLACK PASTEL | SECOND PLACE
JAMEY MAGNIFICIO
GREEN | THIRD PLACE
CRAG SMITH
NOVICE | FOURTH PLACE
M. COLEMAN
RED |
|------------------------------------------------|-------------------------------------------|-------------------------------------|-----------------------------------|

BEST OF SHOW MALE DELTA

- | | | | |
|----------------------------------------------|-------------------------------------------------|---------------------------------------|------------------------------------|
| FIRST PLACE
ED RICHMOND
HALF-BLACK ADO | SECOND PLACE
JOE HANKIN
HALF-BLACK PASTEL | THIRD PLACE
JIM ALDERSON
ALBINO | FOURTH PLACE
JAVIERAL AL
RED |
|----------------------------------------------|-------------------------------------------------|---------------------------------------|------------------------------------|

BEST OF SHOW MALE SWORD/VEIL TAIL

- | | | | |
|-------------------------------------|----------------------------------------|-----------------------------------------|----------------------------------|
| FIRST PLACE
CRAG SMITH
NOVICE | SECOND PLACE
JIM ALDERSON
NOVICE | THIRD PLACE
D. COLEMAN
VARIEGATED | FOURTH PLACE
JAMEY MAGNIFICIO |
|-------------------------------------|----------------------------------------|-----------------------------------------|----------------------------------|

BEST OF SHOW FEMALE

- | | | | |
|----------------------------------------------|--------------------------------------|-------------------------------------|------------------------------------|
| FIRST PLACE
DAVIDA TAIL
HALF-BLACK ADO | SECOND PLACE
CRAG SMITH
NOVICE | THIRD PLACE
DAVIDA TAIL
BLACK | FOURTH PLACE
DAVIDA TAIL
RED |
|----------------------------------------------|--------------------------------------|-------------------------------------|------------------------------------|

BREEDER MALE

- | | | | |
|-------------------------------|------------------------------|-----------------------------|------------------------------|
| FIRST PLACE
VINCE SULLIVAN | SECOND PLACE
JIM ALDERSON | THIRD PLACE
JIM ALDERSON | FOURTH PLACE
JIM ALDERSON |
|-------------------------------|------------------------------|-----------------------------|------------------------------|

BREEDER FEMALE

- | | | | |
|----------------------------|-----------------------------|----------------------------|-----------------------------|
| FIRST PLACE
DAN WHITMER | SECOND PLACE
DAN WHITMER | THIRD PLACE
DAN WHITMER | FOURTH PLACE
DAN WHITMER |
|----------------------------|-----------------------------|----------------------------|-----------------------------|

BOYFISH COLOR VEIL

1. Tom & Pat Allen
2. Tom & Pat Allen
3. Tom & Pat Allen
4. Dave Goldman

HALF-BLACK VEIL

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

SHARKS/MAY VEIL

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

ROUND VEIL

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

VARIEGATED VEIL

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

ALBINO FEMALE

1. Frank Davis
2. Frank Davis
3. Jane Goldman
4. Frank Davis

ADG FEMALE

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

BLACK FEMALE

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

BLUE/GREEN FEMALE

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

BROWN FEMALE

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

GOLD FEMALE

1. M & M Goldman
2. Ed Richmond
3. Ed Richmond

HALF-BLACK ADO FEMALE

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

HALF-BLACK RED FEMALE

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

RED FEMALE

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

JUDGES: Gena Glasco, Mary Johnson, Bill Klein, Stephen Kowder, Doris Lippa, Mike Laskin, Janey Magnifico, Frank Ortega, Dave Pokras, Ed Richmond.
ASSISTANT JUDGES: Vic Piro, Robert Schenckel.
OBSERVERS: Vincent Sherry, Elsie Pashy, Betty Engle, Gene Bauler, Fred Frigasso, Michael Sode, Mary Malesky, Ed Simakowski, Don Lewis, Steve Halton, Adrian Hernandez, Tracy Dangle, Corrine Dangle, John Forwards, Gudo Pordal.

ALBINO DELTA

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

ALBINO TANK

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

ADG DELTA

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

ADG TANK

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

ADG BICOLOR DELTA

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

ADG BICOLOR TANK

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

BLACK DELTA

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

BLACK TANK

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

BLUE DELTA

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

BLUE TANK

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

BLUE/GREEN B DELTA

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

BLUE/GREEN B TANK

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

BROWN DELTA

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

BROWN TANK

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

GOLD DELTA

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

GOLD TANK

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

GREEN DELTA

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

GREEN TANK

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

H-B ADO DELTA

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

H-B ADO TANK

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

H-B BLUE DELTA

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

H-B BLUE TANK

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

H-B PASTEL DELTA

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

H-B PASTEL TANK

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

H-B RED DELTA

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

H-B RED TANK

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

H-B RED DELTA

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

H-B RED TANK

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

H-B YELLOW DELTA

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

H-B YELLOW TANK

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

MULTI DELTA

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

MULTI TANK

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

RED BICOLOR DELTA

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

RED BICOLOR TANK

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

SHARK SOLID DELTA

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

SHARK SOLID TANK

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

RED BICOLOR DELTA

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

RED BICOLOR TANK

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

SHARK SOLID DELTA

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

SHARK SOLID TANK

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

SHARK VAR DELTA

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

SHARK VAR TANK

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

SWORDTAIL DOUBLE

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

SWORDTAIL TANK

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

SWORDTAIL SINGLE

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

SWORDTAIL TANK

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

YELLOW DELTA

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

YELLOW TANK

1. Ed Richmond
2. Ed Richmond
3. Ed Richmond
4. Ed Richmond

SHOW SCHEDULE

FIRST HALF 1994-1995
SHOW SEASON

NEW ENGLAND FANCY
GUPPY ASSOCIATION
SHOW DATES
August 27 - 28, 1994

GUPPY ASSOCIATES
INTERNATIONAL CHICAGO
SHOW DATES
September 17 - 18, 1994

GUPPY ASSOCIATES OF
MILWAUKEE
SHOW DATES
November 4 - 5, 1994

JUDDING SEMINAR
ANNUAL MEETING

GUIDE TO A FISH SHOW

The crowds are gone,
the show is over.
Where glass windows would spin glass,
Put it up with special care.

To win a prize you must be good.
Some were dominant,
some were sad.
Those who won at home, were glad.
Complaints we heard,
loud and clear
But we get them every year.

The hall is empty,
the lights are low,
We have tried our best to present a show.

Some friends we made,
we hope to have,
of all time and distance will not ever

All things must end,
for that is fate,
But we will meet again
at our next guppy show date

Karl Hurlberg



GUPPY ASSOCIATES OF MILWAUKEE

INTERNATIONAL FANCY GUPPY ASSOCIATION TEN POINT SHOW

NOVEMBER 3 - 6, 1994

SCHEDULE

THURSDAY, NOVEMBER 3, 1994

Evening Fish Room Tours
Call Bill Hiler For Details 414 612-0204

FRIDAY, NOVEMBER 4, 1994

1:00PM-4:00PM Evening Hospitality Reception Judging Seminars

SATURDAY, NOVEMBER 5, 1994

8:00AM-10:00AM Registration
10:00AM-12:00PM Appointments
12:00PM-1:00PM Lunch
1:00PM-2:00PM Judging
2:00PM-3:00PM Open House
3:00PM-4:00PM Awards

SUNDAY, NOVEMBER 6, 1994

8:00AM-10:00AM Open House
10:00AM-12:00PM Appointments
12:00PM-1:00PM Lunch

LOCATION

MIDWAY HOTEL - MILWAUKEE AIRPORT
8100 South Howell Avenue Milwaukee, WI 53219
414 704-7100

(Approximate Mileage: Milwaukee to Midway Hotel 15 miles)

ACCOMMODATIONS

Please make your reservations prior to October 14, 1994 to be sure of accommodations at the show site. Rooms and breakfast daily and Saturday night under Guppy Associates in Midway Hotel. Price is \$49.00 plus tax and phone. For further information or to make reservations please call 414 704-7100.

SHOW CHAIRPERSON

DAVID RUDOLPH KINZBERG
6106 South 47th Street Milwaukee, Wisconsin 53219
414 54 1947

SHIPPED IN ENTRIES

RICHARD WAGNER
1414 Alameda Supply Company
102 North 10th Street Milwaukee, Wisconsin 53203
414 272-4485 or 414 352-7918
All shipped entries must be received by Friday November 4, 1994. 2. Collect shipments will not be accepted. Shipment labels must be provided if fish are to be shipped. A fish will be auctioned. All entry fees must be prepaid.

ENTRY FEES

SINGLE ENTRY	\$1.00
TANK ENTRY	\$2.00
BREEDER ENTRY	\$3.00
JUNIOR CLASS	\$1.00

GENERAL RULES

1. Entries must be registered by GUPPA, Saturday November 5, 1994.
2. Entries will be judged visually in accordance with International Fancy Guppy Association Rules. Judging will be held in the evening.
3. Exhibitors will be responsible for the care of their entries and for the safety of their entries. Entries will be evaluated at the time of registration.
4. All entries must be properly labeled and be properly maintained.
5. Entries must be properly labeled and be properly maintained.
6. Entries must be properly labeled and be properly maintained.
7. No fish will be removed from the show area until 10:00 PM Sunday November 6, 1994, and then only by permission of the show chairperson.
8. All entries must be properly labeled and be properly maintained.

ENTRIES

SINGLE ENTRY

Single entries will be accepted in the show area at 10:00 PM on November 5, 1994. The entries will be judged on the day of the show.

TANK ENTRIES

Two matched pairs of fish will be accepted in the show area at 10:00 PM on November 5, 1994. The entries will be judged on the day of the show.

BREEDER MALE

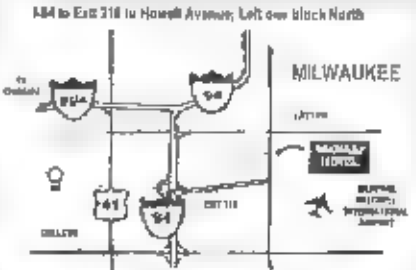
One breeder male will be accepted in the show area at 10:00 PM on November 5, 1994. The entries will be judged on the day of the show.

BREEDER FEMALE

One breeder female will be accepted in the show area at 10:00 PM on November 5, 1994. The entries will be judged on the day of the show.

AWARDS

First Place Winner will receive a trophy. Second Place Winner will receive a trophy. Third Place Winner will receive a trophy. Fourth Place Winner will receive a trophy. Fifth Place Winner will receive a trophy. Sixth Place Winner will receive a trophy. Seventh Place Winner will receive a trophy. Eighth Place Winner will receive a trophy. Ninth Place Winner will receive a trophy. Tenth Place Winner will receive a trophy.



CLASSES

- DELTA
- ABC BICOLOR
- ALBINO
- BLACK
- BLUE
- BLUE/BLACK BICOLOR
- BRONZE
- BUILD
- GREEN
- HALF-BLACK ABC
- HALF-BLACK BLUE
- HALF-BLACK BLACK
- HALF-BLACK BICOLOR
- HALF-BLACK RED
- HALF-BLACK YELLOW
- HEAT
- MILWAUKEE
- RED
- RED BICOLOR
- CHANGING COLOR
- SNAILSKIN VARIATED
- RED
- JUNIOR & NOVICE
- TANK
- ABC
- ABC BICOLOR
- ALBINO
- BLACK
- BLUE
- BLUE/BLACK BICOLOR
- BRONZE
- BUILD
- GREEN
- HALF-BLACK ABC
- HALF-BLACK BLUE
- HALF-BLACK BLACK
- HALF-BLACK BICOLOR
- HALF-BLACK RED
- HALF-BLACK YELLOW
- HEAT
- MILWAUKEE
- RED
- RED BICOLOR
- CHANGING COLOR
- SNAILSKIN VARIATED
- RED
- JUNIOR & NOVICE
- WEIL
- MOOREY COLOR
- HALF-BLACK
- SNAILSKIN
- BUILD
- VARIATED
- JUNIOR & NOVICE
- FEMALES
- ABC
- ALBINO
- BLACK
- BLUE/BLACK
- BICOLOR
- GREEN
- HALF-BLACK ABC
- HALF-BLACK BLUE
- HALF-BLACK BLACK
- HALF-BLACK BICOLOR
- HALF-BLACK RED
- HALF-BLACK YELLOW
- HEAT
- MILWAUKEE
- RED
- RED BICOLOR
- CHANGING COLOR
- SNAILSKIN VARIATED
- RED
- JUNIOR & NOVICE
- DREEMERS
- FEMALE & MALE
- SWOONERS
- DOUBLE & SINGLE

The Guppy Associates of Milwaukee requests the honor of your presence at the International Fancy Guppy Association Banquet and Awards Ceremony to be held on November 5, 1994 at the Midway Hotel - Milwaukee Airport

PROGRAM

- 6:00PM - Open Bar
- 7:00PM - Buffet
- 8:00PM - Awards
- Entertainment Afterwards

RESERVATIONS

To make reservations, please send Twenty Six Dollars per person to Dick or Andrea Wagner 1021 Old World Third Street Milwaukee, Wisconsin 53203 414 272-4485 or 414 352-7918 R.S.V.P. before October 12, 1994

MILWAUKEE

PRO SPORTS TEAMS, BEACHES & PARKS, MUSEUMS, RESTAURANTS, THEATERS, PEOPLE

ENJOY ONE OF MILWAUKEE'S WORLD CLASS MUSEUMS. YOUR ONE OF THREE CHALLENGES, TAKE ON THE CHALLENGE OF SPORT FISHING IN LAKE MICHIGAN OR SKATE WITH OLYMPIC HOPEFULS AT THE PETIT NATIONAL ICE CENTER

FAMOUS ATTRACTIONS WORLD CLASS MUSEUMS

- Midway Park Horticultural (The Dunes) 824 South Layton Boulevard 414 610-1100 The only horticultural structure of its kind in the world. Finest glass and brick building in the world. Open daily 10:00 AM to 5:00 PM. Admission \$2.00. Children \$1.00. Seniors \$1.00. Free parking.
- Milwaukee County Zoo 1401 West Blue Mound Road 414 354-3446 A beautiful park with a wide variety of animals. Open daily 10:00 AM to 5:00 PM. Admission \$2.00. Children \$1.00. Seniors \$1.00. Free parking.
- Milwaukee Public Museum 800 West Wells Street 414 272-1100 The only museum in the world that is a part of the city. Open daily 10:00 AM to 5:00 PM. Admission \$2.00. Children \$1.00. Seniors \$1.00. Free parking.
- Miller Brewing Company 401 West State Street 414 272-1100 The only brewery in the world that is a part of the city. Open daily 10:00 AM to 5:00 PM. Admission \$2.00. Children \$1.00. Seniors \$1.00. Free parking.

TOURS

SHOPPING CENTERS

- Burns Mills Outlet Mall 144 & Route 32 414 352-7918 The world's largest outlet mall. Open daily 10:00 AM to 5:00 PM. Admission \$2.00. Children \$1.00. Seniors \$1.00. Free parking.
- Factory Outlet Centre 7700 & 30th Avenue 414 352-7918 A fully enclosed, one level mall with over one hundred factory direct stores. Open daily 10:00 AM to 5:00 PM. Admission \$2.00. Children \$1.00. Seniors \$1.00. Free parking.
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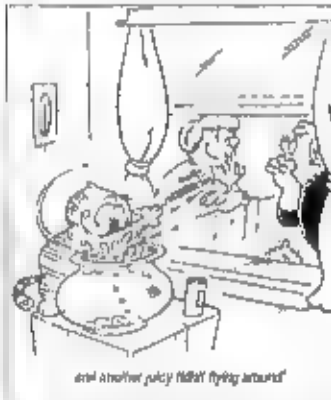
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The GUPPY ROUNDTABLE

VOLUME III ISSUE IV

THE OFFICIAL MONTHLY PUBLICATION OF THE

OCTOBER 1984

INTERNATIONAL FANCY GUPPY ASSOCIATION

WATER CHANGES MADE EASY, BUT I LOST MY BICEPS IN THE PROCESS

Blake Poy
Pan Pacific Guppy Association

I must have visited five or six fish rooms since started breeding guppies and they had the following in common: they were large, on the first floor of a house, and rather permanent-looking setups with racks and racks of tanks with the short-end out. Powerful blowers and central heating were common. Keep telling myself that someday, when I am done with school, and am making good money, would buy a house and have a real fish room.

Currently, I am breeding fish in a seventeen tank setup, and I show fish when manage to come up with something that looks competitive. My fish get the same level of care in terms of water change, disease management and feedings in my small setup as they would in a big fish room so that must mean that decent fish can be produced in a ten-to-twenty tank setup. The odds of consistently producing award-winning fish are not as good, but if one is careful and patient the payoff in award cards and plaques will one day come. I was floored when I had only eight tanks and one of the three entries I sent to a show (one of

the first times showed) placed among the best in the show.

As an apartment dweller, have been forced to keep my hobby on a small scale. As said, had eight tanks to start, then expanded to fourteen tanks of various sizes, ten-gallon or smaller. What allowed me to expand successfully without ending up with a busted back was my experience with my first apartment setup and some good suggestions I have gotten since then.

Back then, used a large executive sized desk and covered it with small tanks. One large diaphragm pump was all I needed for the box filters used. Each tank had an Ebo-Jager heater. Every week would siphon into a five gallon bucket and lug it to the bathroom, where I poured the water down the toilet. I would then go back and repeat. Sometimes I took a detour and watered my terrace garden. Filling consisted of lugging water from the tub to the tanks. I really had great biceps then.

I moved to Southern California and lost everything up as before. That did not last

HOT NEW SERIES:

HOW TO MAKE GENETICS WORK FOR YOU

INSIDE THIS ISSUE

4 MAKING GENETICS WORK FOR YOU
By Midge Hill
A new twelve part series devoted to guppy breeders has started with a "natural" environment for fish.

7 SECRETS OF A SUCCESSFUL PLANTED AQUARIUM
By Michael Kumpf
Requiring more effort than passive plants, live plants provide a "natural" environment for fish.

12 THE TRUTH ABOUT GUPPIES
By Richard W. Fleming
Breeders are not guppy guppies will always comment "My breeding stock needs new blood".

17 POLLUTION IN TANKS
By Elizabeth G. Abidulay
Both how to prevent diseases from infecting fish and why these pathogens are invading our hobby.

19 HOW TO SELECT ENTRIES
By Pam Allen
Informative article about one of the most published topics of our hobby: matching fish for tank events.

21 SALT FOR THE FRESHWATER AQUARIUM
By Stephen Krumholz
A little amount of salt in the water of freshwater fish enhances their health.

23 NONE OF THIS, SOME OF THAT
Paul Gerald and Alan Shubel
Another batch of thought provoking questions and thoughtful answers.

24 MESSAGE FROM THE EDITOR
By Davidsen Tall
Reflections concerning limits of publication responsibilities for future issues of the Guppy Monthly.

25 ACCUMULATIVE POINT TOTALS FOR 1984-1985 SHOW SEASON
By Dale L. Whitmer
Accumulative point totals for current show season through August 28, 1984.

26 PAN PACIFIC GUPPY ASSOCIATION SHOW RESULTS
By Ann Alderman, D.V.M.
Official results from second show of current show season hosted by the Pan Pacific Guppy Association.

28 CLEANSING HOUSE
By Stephen Krumholz
Current list of available guppy breeding stock from the country's top award winning breeders.

29 GUPPY SWAP SHOP
By Davidsen Tall
Month's classified section listing fish, plants and more for sale and trade.

29 LISTING OF INTERNATIONAL FANCY GUPPY ASSOCIATION AFFILIATED CLUBS
By Davidsen Tall
Current list of International Fancy Guppy Association affiliated clubs and contact persons.

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The Guppy Monthly is published monthly
except January & February.
Westside Guppy Association
Business offices located at:
11011 Culver Boulevard
Culver City, California 90230

Application to Post at Second Class Postage
Rates is pending at Culver City, California

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For subscription information contact:
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Subscriptions are \$20.00 per year for eleven issues. Outside the United States subscribers must add \$5.00 per year. All other foreign country subscriptions must add \$5.00 per year. Please use international money orders only.

Allow six to eight weeks for delivery of first issue.

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STRESS COAT WATER CONDITIONER

long because the earthquake almost collapsed the desk. Nervously waited until morning so I could go out and buy heavy duty shelves. The shelves came with a metal skeleton and particle board shelves, which replaced with 3/4" sanded plywood. I discovered that with the two 2-1/2" units, had a lot of extra space, so I bought six more ten gallon tanks and ordered more supplies.

After one week of lugging buckets for fourteen tanks I realized at a meeting that I could not keep doing that. Maybe I was in over my head. A club member told me how to make a much longer siphon to extend to the bathroom. I purchased a garden hose with a 3/4" inside diameter, a 3/4" diameter gravel vacuum and an adapter which made the hose compatible with the bathroom sink. This part is available at the hardware store and is used for hooking up washing machines. You simply unscrew the screen from the faucet and replace it with the adapter.

I cut off the end of the hose that does not hook up to the sink. The "tail" of the gravel vacuum is put aside for later. Put one end of the hose part of the gravel vacuum in a tank and suck to get the siphon started. Then quickly jam that end into the cut-off end of the hose. Go from tank to tank placing my finger over the end of the siphon in the tank to preserve the vacuum. Cut off a 3' segment of the gravel vacuum hose (not the garden hose) and jam it into the ball of the gravel vacuum. This is connected to the cut-off end of the garden hose. Screw in the other end of the hose to the faucet attachment and you have a filler. If the flow is adjusted to a moderate level switching to the next tank is easy. You just up-end the vacuum attachment. Quickly step over to the next tank before the attachment overflows and you are set. Doing water changes this way has saved quite a bit of time but there was a bit of a tradeoff: lost the biceps.

It really is too bad that I do not own this

apartment. I would make some changes around here. I would get rid of the wall to wall carpeting, and would set up a drip system and get more tanks. Since I can not take great care to do my bleaching in the bathroom and completely dry or shake off anything before I leave the room, also watch filling tanks like a hawk because the building superintendent recently moved in below me.

I have limited what I breed to only one strain of guppies, but I have been selling up several different lines. This has given me enough of a challenge to keep me interested.

I am pleased that the level of care I give my fish has not been compromised since I doubled the number of tanks. Keep in mind that with a little extra care and some hoses one can raise guppies successfully in a small setup without getting an eviction notice or a hernia.

STRESS COAT WATER CONDITIONER

By Elizabeth Jensen
Southern California Guppy Association

Aloe Vera comes from the Barbados aloe, a group of fleshy-leaved plants, grown especially in South Africa. Aloe Vera has long been known for its use as a medicinal purpose, i.e. minor burns and cuts, and as a purgative and stimulant of the intestine and the liver.

The manufacturer of Stress Coat advertises it as a "liquid bandage." They state it promotes the healing of torn fins, skin wounds, and prevents the loss of internal fluids and electrolytes through the skin. I am excited to see a product like Stress Coat has taken its place in the market place. As an avid supporter of natural medicine, believe me I subject our bodies to far too many chemicals. Just as chemicals react in

humans, what will they do to our fish? I like using a product which contains natural ingredients versus all chemicals in our tanks.

I visited several pet shops to determine what conditioners they use in their tanks. Many of them allowed me to take samples for my study. At home, I placed a drop of Stress Coat and each of the other conditioners on my fingers. I did this to compare their coating capabilities both wet and dry. While wet, all of the conditioners had a very slippery feeling. I noted that only Stress Coat stayed in droplet form, while the other conditioners ran down my finger. I allowed each sample to dry and noticed that it was hard to detect the other conditioners on my fingers while it was easy to determine which finger contained the Stress Coat sample.

Next, carefully ran water over each finger. With the exception of Stress Coat the other conditioners rinsed off easily. I also noted the Stress Coat finger felt softer. I suspect this results from the manufacturer's claim of coating capabilities. Setting up several samples, each containing equal amounts of water, placed a drop of each conditioner in them. With the exception of Stress Coat the

other conditioners disbursed totally. Stress Coat mixed with a little agitation or some additional water being added. All of the conditioners were clear in color thus not coloring the water sample. Some, but not all, of the conditioners clouded the water samples.

Having set up numerous tanks over the past year, I have found clearing the water a long and tedious process. I was able to use Stress Coat exclusively in setting up two new tanks this past month. While I am not discounting the possibility of the water properties having an effect on it, I did notice that the water was crystal clear within twenty-four hours time. I suspect the denseness of Stress Coat along to the minerals permitting them to settle faster.

I found Stress Coat Water Conditioner to be an excellent product. It comes in a pump bottle, which in this house represents less waste, or pet stores sell it in a gallon size bottle which represents a tremendous savings. While I try to subject my guppies to as few chemicals as possible, I feel more comfortable in using Stress Coat which contains a natural ingredient. I would love to know if my fish feel the same.



A new
twelve part
series for
guppy breeders
and genetic
enthusiasts

MAKING GENETICS WORK FOR YOU

W e guppy breeders are really a class apart, because whether we like it or not we are basically all geneticists. There are those who decline the fancy mathematical formulae of genetics, but the fact remains that anyone who consistently breeds his biggest and best male guppy to his loveliest female is practicing a form of

However the trial and error crossings do not begin to tap the possibilities that emerge from a knowledge of what genes are and how they work. Let's face it, we are lovers of results. And, like it or not, results are a product of genes (conscious or unconscious). And, as long as we have faced the fact, why not use genetics to help us produce better guppies. There are many ways that an inkling of genetic theory can give us a way to improve dorsal size, body size, color, etc.

In the next issue of the Guppy Roundup,

we will begin a series by Dr. Eugene Carr on genetics that will go into many aspects of guppy genetics that this editor has never seen in print. Dr. Carr had been raising guppies for twenty years and became an avid gene hunter over thirty years ago when those articles were penned. He delved into technical journals from all over the world and conducted countless experiments of his own in searching for the answers to elusive genetic questions.

The purpose of this series of articles is not to teach a course in basic genetics, but rather to emphasize the ways that the principles of genetics can work for you to help develop and improve desirable characteristics and eliminate undesirable ones through the knowledge of the genetics involved with a particular trait.

To refresh (or acquaint) you with the terminology that it will be necessary to use, we include here in this article a brief run-down on the more important genetic terms.

GENES: The units of inheritance which pass characteristics from one generation to the next. Each guppy has thousands of genes, which align themselves in a linear order on thread-like bodies known as chromosomes.

CHROMOSOMES: All the thousands of genes within a guppy are aligned on just forty-four chromosomes plus the sex chromosomes X and Y. Each gene has a particular place on a chromosome, and controls a specific inherited characteristic.

ALLELES: A given gene may exist in several forms that cause differences in function, color, size, etc. These different states of a gene are called alleles. Alleles always affect the same characteristic and since they occur on the same chromosome position only two alleles of each gene may be present, one having come from the egg and one from the sperm cell.

DOMINANT OR RECESSIVE: Alleles are

THE EARTHWORM: THE GUPPY GOURMET'S DELIGHT

By: Bud Clark
Southern California Guppy Association

The earthworm - a gourmet's delight? Yes, if you happen to be a guppy. Few live foods are more nutritious and none are more available than the earthworm. We culture white worms and microworms, so why not earthworms?

First you will need a large wooden box. Fill

it about two-thirds full with equal parts of sterile loam and peat moss. Mix in some coffee grounds and some decaying leaves if available, if not, mix in potato peelings. The ground should be damp but not wet. Time now to gather your worms. You may get them from your yard or at a bait shop. Cover your box with a damp piece of burlap, and place it in a cool place.

Earthworms lay eggs in clusters the size of a mustard seed. It will take a few weeks before you notice your culture growing. Feed your worms potato peelings, oatmeal or lettuce leaves. Use your own judgment on how often to feed, as many factors must be taken into consideration. Such as the size of box, number of worms, etc. You probably will not want to feed your worms any more often than every two weeks.

Once your culture is established and reproducing well, you may lift the burlap and gather them for your guppies. Place the

worms in a shallow pan with a small amount of water. After an hour or so you will notice the worms have cleansed themselves. Take them out and rinse off before feeding.

Large guppies will love them whole or cut in half. A razor blade is the best 'tool' for cutting. If you are squeamish or if "attacking" a worm with a razor blade reminds you of your days in biology class, you can freeze the worms. This works most satisfactorily for me. It also makes it much easier to slice off those bite-sized pieces for your medium or smaller guppies. I

Year of experience in feeding earthworms to my guppies has shown me that it is best to remove any uneaten portions from the tank. This is easily accomplished by using a siphon hose.

So as the television commercial used to say "Try it - you will like it" and so will your guppies.

classified as to dominant or recessive although some function in an intermediate fashion. An allele is dominant if it can express itself when only one of that allele is present. A recessive allele requires that both alleles be the same before it can manifest its characteristics.

HOMOZYGOUS OR HETEROZYGOUS: An organism is homozygous for a particular trait if both gene alleles for that particular trait are of the same form. If the two gene alleles differ the organism is heterozygous (or hybrid).

PHENOTYPE OR GENOTYPE: Phenotype refers to the outward appearance of the individual regardless of genes involved. Genotype indicates the genetic makeup of the individual (expressed by genetic symbols).

POLYGENES: Are also involved in the expression of one specific characteristic except that polygenes occur at different locations on the chromosome and more than two can be present. For example the red color in guppies is the result of the combined action of at least four genes

located on various chromosomal places.

SEX-LINKED: Those traits caused by genes which lie on only the "X" or "Y" chromosome but never on both. Father to son inheritance is caused by genes on the "Y" chromosome. Mother to daughter inheritance is caused by genes on the "X" chromosomes. Mother to son inheritance is also caused by genes on the "X" chromosome.

SEX-LIMITED: Those traits caused by genes which are found in both the sexes but are only visible in one sex. The visibility of the trait being caused by the hormonal balance in the fish.

GENE LINKAGE: Genes which tend to remain together during meiosis, more because of close chromosomal proximity than because of the characteristics they may affect. Until fairly recently gold body color in guppies was linked with shorter narrower tails and virtually no gold guppies had long flowing tails.

AUTOSOMAL-LINKAGE: These particular traits are caused by genes that are found on any chromosome other than the "X" or "Y"

CROSS-OVER: When linked genes break apart and recombine into a new association of genes. In our example of gold guppies, a cross-over occurred and broke up the gold body-narrow tail linkage so there are now gold guppies available with tails as large as any other guppy. The amount of crossing over is correlated with the distance between the genes involved. With the higher percentage of crossing over occurring when the genes involved are more widely separated on the chromosome. Cross-overs are very important in guppy breeding. They are what makes it possible to select desirable characteristics individually and separate them from undesirable ones. This would not be possible if genes remained firmly linked, as characteristics would be inherited in large blocks.

MUTATIONS: A gene is an extremely stable unit and can make thousands of exact copies of itself as cells multiply, but occasionally something goes wrong and the new gene differs from the original gene. This mutated gene will now continue to duplicate itself as perfectly as did the original gene. Most mutations are detrimental but some can be used to advantage. Our wide tailed

fancy guppies of today are a result of many mutations. The heavy long tails would actually be detrimental to the guppy itself in the wild state, but in this case they are advantageous to us as breeders. Since we can control the environment of our guppies it is possible for these wide-finned guppies to live and breed. These mutations are changes of the actual gene structure itself. Other mutations also occur in chromosomal structure, but are more commonly called chromosomal aberrations.

SOMATIC MUTATIONS: Mutations that occur as some cell other than the reproductive cells. As breeders we are not as concerned with these mutations as they are not passed on to future generations. However they do occur in individuals and are often puzzling.

GENERATION SYMBOLS: The commonly accepted symbols to designate generations in breeding programs are those started long ago by Mendel. The parent generation is designated as P-1. Fry from these parents would be called F-1 (first filial generation), and the fry from these would become F-2.

GENE SYMBOLS: Mendel's method of using letters as symbols for genes is almost universal today. A small letter stands for a recessive gene and a capital letter for the dominant form of the same gene.

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INTERNATIONAL FANCY GUPPY ASSOCIATION MONTHLY PUBLICATION

SECRETS OF A SUCCESSFUL PLANTED AQUARIUM

By Michael Scott
Northern California Guppy Association

Do your fish hide constantly? Do you have excess algae growth and a high level of nitrates in your aquarium water? Do you want a more "natural" look for your tank? If you answered yes to any of the above, live aquatic plants may be just the thing for you.

Live plants are usually purchased primarily for their aesthetic qualities. Their function in aquariums, however, is much more than aesthetic. Growing leaves and roots can be much better filters than any man-made filter money can buy. During photosynthesis, plants produce oxygen that is essential for all higher life forms, and in turn consume carbon dioxide released by the fish. Furthermore, plants offer a safe haven for small fish that feel too vulnerable to venture out into the open water. Shy fish feel secure among plants and will soon come out of hiding, confident that they always have a safe place to retreat to if danger approaches. Plants also provide ideal breeding sites for many species of fish. Best of all, plants look great!

With all of these advantages, why don't more aquarists have live plants in their aquariums? The answer is quite simple. Many aquarists give live plants a try when they first get into the hobby and give up. In a typical scenario, a beginning hobbyist sees a healthy looking Amazon sword plant at a local pet store and decides that it would look splendid as a centerpiece in his or her tank.

"Although certainly requiring more effort than plastic plants, live plants provide a "natural" environment for both fish and aquarist"

The plant is eagerly purchased, taken home and planted in the aquarium. A few uneventful days pass. After about a week the aquarist notices a bit of algae on the leaves, but ignores it. After another week, there is even more algae and still no new leaves. Thinking that there is not enough fertilizer in the aquarium water, the person decides to fertilize the tank generously.

The situation gets worse, much worse. Another week later the leaves are totally covered with stubborn algae that cannot be

removed. Soon, the leaves on the bottom turn brown and fall off. This is when most people quit. Some persevere and try again, but after encountering similar results the second time, they come to the conclusion that live plants are impossible to keep alive.

You can prevent this from happening to you by following a few simple rules. After reading this two-part article, you will understand why the scenario mentioned above had an unhappy ending, and how to avoid it.

It is possible to have a beautiful aquarium like the ones you have seen in tropical fish books, magazines and newsletters. The idea is to create an environment conducive to the growth of fish and plants. When it comes to growing plants, yield to the requirements of the plants instead of making them adjust to your tank's environment.

Very few things in the hobby are absolute, and many hobbyists have different ways of achieving their goals. Although my approach to a successful planted aquarium is initially not the only one, I have had repeated success with it, and it is fairly simple. You may wish to experiment with the flexibility of this approach and come to your own conclusions.

THE TANK

Most plants need a tank that is at least eighteen inches (forty-six centimeters) tall to reach their full size and splendor. In a shorter tank, the plants will quickly reach the surface and start growing horizontally.

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GRAVEL

blocking the light meant for smaller plants. On the other hand, in tanks taller than eighteen inches, not enough light reaches the lower third of the tank and the plants on the bottom suffer. Standard 29-, 55- and 70-gallon, 110-, 208- and 265-liter aquariums are examples of tanks with adequate dimensions. The "long" 20-gallon 76-liter and 40-gallon 152-liter tanks are not really suitable for growing the larger varieties of plants because they are not tall enough. These tanks are fine if you wish to have plants that grow to a height of only six inches (fifteen centimeters) such as dwarf anubias, Java moss, *Cryptocoryne* sp. and so on.

When it comes to tank size, bigger is usually better. If you don't feel confident enough to work with a large tank, start off with a 29-gallon aquarium and get a larger one after gaining more experience in the hobby.

TANK LOCATION

As with all aquariums, it is best not to keep a planted aquarium near a window where it might be exposed to direct sunlight. You cannot control the duration and intensity of light in such a location. Uncontrolled amounts of sunlight will result in an algae bloom, as well as overheated water during the warmer months. Keep your tank away from heating and air conditioning vents; close proximity to these vents can cause dangerous temperature fluctuations within the tank.

You may choose a tank stand that fits your decor, but make sure that the stand is level and sturdy enough to support the tank's weight. Standard furniture, such as desks, bookcases or bureaus, cannot support the weight of a fully set-up aquarium (about ten pounds per gallon, 4.5 kilograms per 3.8 liters, and are therefore unsuitable tank stands).

GRAVEL

In a planted aquarium, it is best to use gravel that is two or three millimeters in diameter (referred to as Number Two or Number Three gravel). Smaller gravel may create anaerobic (without oxygen) pockets and restrict root growth. Larger gravel allows room for uneaten food particles to become

GUPPY ROUNDABLE

embedded in between pieces of gravel, creating a source for water pollution. Although gravel comes in many bright artificial colors, a natural look is best achieved with any shade of brown. Colored gravel distracts the viewer from the real attraction of the tank: the plants and the fish. Before adding gravel to the tank, be sure to wash it thoroughly to remove impurities.

Because washed gravel does not contain anything that plants consider a food source, it will be necessary to add a gravel supplement/additive, such as Tetra's Micro Inlet O(TM). Mix it generously with half of the washed gravel and place it in the tank, topping this off with the remaining gravel. This mixture provides many of the necessary nutrients that plants need to grow in aquariums.

Not all plants take in nutrients through their

roots. Some use their leaves for taking in nutrients and their roots solely for anchorage. These kinds of plants do not benefit much from a gravel additive. However, plants such as Amazon swords (*Echinodorus* spp.), which are really marsh or bog plants, do absorb nutrients through their roots. Their leaves are above the water line in their natural habitat. These plants benefit greatly from a gravel additive.

It is interesting to note that European hobbyists, especially the Dutch, use many different additives including unwashed peat, pebbles, rocks, sand, topsoil and even fertilizer at times! Because most aquariums contain both plants that are root feeders and plants that are leaf feeders, it is very important to fertilize for both types. The use of fertilizers will be discussed in the second part of this article scheduled to appear in the December 1994 issue of the *Guppy Roundtable*.

LIGHT

Lighting a planted aquarium seems to be something that many hobbyists have much trouble with. Unfortunately, the amount of light provided by the single fluorescent tube in the hood of most setups is far from sufficient. The light from one tube is barely enough to see the fish. Plants generally need a lot of light, with intensity being as important as duration. In most aquariums, plants do not receive anywhere near the amount of light they require. In addition, many poorly illuminated tanks are also over-fertilized by the hobbyist.

Assimilation of nutrients in aquarium plants is directly proportional to the amount of light that falls on them: plants cannot utilize all the fertilizer that is being added if they receive insufficient light. A dimly lit tank provides the ideal conditions for algae growth, and it is algae that eventually

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THE GUPPY

Consider the guppy as a household pet. You have nothing to do but keep him wet. His bearing is mild, his manners are neat. His face is clean, his breath is sweet.

He does not bark, he does not sting. He does not shed feathers or fur or hairs. All over the sofa and carpets and chairs.

You never find him underfoot. You put him someplace and he stays put. He asks but little here below. Just food to eat and room to grow.

If either of these is long denied, When you look for him he has quietly died.

overgrows everything in the aquarium. This situation is even worse in a newly established aquarium with an incomplete nitrogen cycle and water containing too much fertilizer.

So, how do you give your plants sufficient light when there is room for only one fluorescent tube in the hood? A tube ingeniously is required here. Remove the hood, cover your tank with a pane of glass from the local hardware store and buy a strip of light from the tropical fish store. A strip light is the tube-and-ballast part of a normal hood, excluding the lid and so on. Carefully place the strip light along with the light from the hood or the glass of the aquarium. Now you have two tubes on your tank. This is a cost effective, partial solution to the problem.

Most plants need two to three watts of fluorescent light per gallon of water to thrive. A 55-gallon (208-liter) tank with one 40-watt tube provides only about 0.7 watts per gallon (3.8 liters). With two tubes, you still have only about 1.5 watts for each gallon. This will suffice if you want to raise hardy, easy-to-grow plants, but it is definitely not enough to grow many of the more attractive varieties.

Unfortunately, most of the especially attractive varieties of plants are very demanding when it comes to light intensity. A 55-gallon tank can be considered well-lit if it has three fluorescent tubes. Thanks to the reef tank hobby, there are many ways of accomplishing the goal. You can purchase pre-wired end caps for three (preferably metal) fluorescent tubes and attach them on top of the tank. If you get waterproof end caps, you can eliminate the glass pane above the water, which sometimes becomes dirty and reduces light transmission.

You will also need separate ballasts to run a setup of this nature. The ballast is usually placed beneath the aquarium and can produce considerable heat. A less expensive way of having three tubes over your tank is to use a combination of a strip light and a two-tube utility light fixture available from hardware stores. This setup, however, is rather bulky and too unattractive to deserve a place in the living room. To

solve this problem, you may need to buy a large hood that conceals all of the unsightly hardware. If you are handy with wood, have the necessary tools and work area, you can construct one yourself and save some money.

In addition to knowing how much light your plants need, you also need to know what kind of light they need. This subject would require another article by itself, but the fundamentals are fairly simple. It is a well-known fact that "plant" lights, such as "StroLux(TM)", are excellent for plant growth, but they are seldom used in aquariums because of their eerie purplish-pink color. These bulbs were designed particularly for aquarium plants and they have the correct combination of phosphors that promote plant growth. They emit large amounts of red and blue light, which are all that plants need for survival. Most hobbyists, however, like to see his or her aquarium under more natural lighting.

Recently, there has been a surge in popularity of full-spectrum tubes, such as Vita-Light(TM) tubes, that imitate the light spectrum in sunlight fairly accurately. These tubes have the important red and blue colors needed by plants, but they also have a large amount of green to make the light appear "natural." Most manufacturers claim their tubes to be either "wide" or "broad" spectrum, but these are not the same as full-spectrum bulbs.

Cool white, warm white and daylight tubes are inexpensive and can be used to illuminate aquariums, but they should always be used in combination with other tubes to balance out spectral deficiencies. You can use various combinations of fluorescent tubes to suit your needs, but it is always a good idea to add one "plant light" to the combination. These tubes are not expensive and can be purchased in many retail stores.

Unfortunately fluorescent tubes need to be replaced every six months. You may not notice it, but the intensity of light will gradually decrease over time. This usually becomes apparent when plants mysteriously begin to die. A simple way to increase the intensity of light is to line the inside of the

light fixture with aluminum foil. Cloudy aquarium water "soaks" on the water surface and water colored from the animals leached from the peat or driftwood also decrease the amount of light reaching the plants.

ADDITIONAL READING

HIGHLY RECOMMENDED:

Water Plants in the Aquarium
Ines Schuermans.

Excellent book for the price and gives many valuable tips.

The Gekko Aquarium

Kasper Hornel and Kipper Hornel.

AD Aquadocumenta Verlag.

Very good book for learning the basic principles of natural habitats and how to imitate them.

A Beginner's Guide to Aquarium Lighting
Barry James.

Tetra Press.

Excellent book on all topics covered in this article. Inexpensive and handy.

RECOMMENDED:

Lighting

Rudiger Riehl and Hans A. Baensch, Baensch.

Includes a very good chapter on aquarium plants.

Aquarium Plants: Their Identification, Cultivation and Ecology

Karel Rajal and Thomas Horneman.

TFH Publications.

Follows a very different approach than the other books listed here, but has excellent information on a wide range of aquatic plants.

Hobbyist Guide to the Natural Aquarium

Gerhard Brunnner.

Tetra Press.

Contains some important basic aquatic plant information.

have focused primarily on fluorescent lights because they are extremely easy to use, cost efficient, readily available at hardware stores and tropical fish shops, and do not produce much heat. Incandescent bulbs can also be used to light planted aquariums, but they have two serious disadvantages that cannot be overlooked: they produce a tremendous amount of heat in the aquarium and they emit too much red light and not enough blue. Red light generally promotes tall lanky growth, whereas blue makes plants stockier.

Although fluorescent lighting is adequate, the best type of aquarium lighting is metal halide or mercury vapor. These lights are extremely bright and they illuminate even tall tanks right to the bottom with amazing intensity. Additionally, they have excellent color rendition. Unfortunately, they are rather expensive, although hardware stores and electrical supply houses sometimes have them at very good prices.

The duration of light for a planted aquarium is another controversial subject that has been the subject of much debate in recent years. It seems logical to give aquarium plants twelve hours of light per day. However, many hobbyists mistake duration for intensity. Sixteen hours of dim light is not the same as twelve hours of intense light. With proper illumination, ten hours of light per day is generally adequate for your planted aquarium.

You will have to determine the correct amount of light your aquarium requires by judging the growth of your aquatic plants and whether there is any algae present in your tank. It is extremely important not to vary the photo-period for your aquarium. You can avoid crucial guess-work by employing a light timer, which is an inexpensive and underrated piece of aquarium equipment for today's hobbyist.

In the December 1994 issue of the *Guppy Roundtable*, I will look at other topics related to growing live plants in tropical fish aquariums. While you wait for the publication of the second installment of this article, you might wish to seek out some of the books listed in the sidebar entitled "Additional Reading."

THE TRUTH ABOUT GUPPIES

Richard W. Fleming
Westside Guppy Association

Any guppy nut with poorer guppies than he would prefer will always come up with the comment on the drop of a bat that "His stock needs new blood," or in other words, a couple of new fish to add into his own. Would likely cure things very nicely. On which comment, a lot of misrepresentation can, and often does happen.

For the sake of the subject at hand, let's say you just happen to be one of the people as stated in paragraph one and you wish to obtain some "new" quality guppies for the purpose of breeding with your own. If you follow the general trend, all you actually wish is some new guppies that (1) look better than your own and are of approximately the same color and (2) these are within your means financially and otherwise. I think that past experience will show that the average guppy hobbyist assumes that once he can fulfill the above two needs, from then on, he will have it "made".

To which statement I can safely say that this assumption is one heck of a poor way to proceed, except for the occasional individual who has more luck than is good for him. Like most everything that gives full

return for the money, any new blood that is added to existing guppies now on hand, a little advance planning and thought will be well worth the time and trouble taken. The old time way of breeding guppies "by guess and by golly" may still be used by those that have no better information to go on, but the modern methods of guppy breeding still makes the best sense and gives the highest rewards.

It is only natural to want a new guppy male that is highly colored, with a wide, triangular-shaped tail and think this is the ideal kind to add into your own fish. However, without some sort of background information on the parentage of the fish, it will be some months before you can know for sure what you actually have. At best, if the guppy is totally unknown to you, the chances are 50-50 that you will even be able to get young (by use of your own females) from such a mating. Chances are even more slim that any resulting young will be an improvement to what you would normally have. It all narrows down to the fact that the truth about guppies is that seldom do they breed as you wish, or can reliably forecast. With unknown stock, with doubtful genetic

background, it is difficult if not impossible to predicate what the offspring will look like.

Perhaps a few personal examples, all true, will better put across what I am trying to say.

I was sent some excellent appearing blue delta guppies one time. The breeder who furnished these was best known for these blues and it took some persuasion to get some of them. On arrival, they did look good, but somehow had the feeling the fish were not as they appeared. So, I did not attempt to blend them into my own blue stock (I am really not strong on blue guppies anyway). It took two generations of the strain to show up the discrepancy. They were heavily mixed with pale red guppies and later on, heard the man out-crossed with reds at intervals to maintain the proper shade of blue. A person buying these fish, and using them to add new blood to his own pure blues, would likely end up with the most mixed up conglomeration of colors to where he would be worse off than he was when he started.

Just recently, two members exchanged guppies of a particular color. The less

experienced of the two noted that the second generation of the fish he had gotten were all appearing with ragged tails. He immediately thought of disease, such as tail rot, or vitamin deficiency, or something similar. However, he did inquire to the other person in the trade who admitted the fish were originally from a strain of swordtail guppies not too far removed. This then, was the apparent tendency of the young to revert towards the more dominant swordtail trait. A not uncommon occurrence, but one that can be misleading if not known about, let me take this breed one step further.

Some years back, when triangular tails were first appearing in small percentages of the more common veiltail guppies, someone noted that the strains that showed up with the best triangular tails always seemed to show a very few male fish with some type of swordtail. Of course, like so many things are, this was laughed off, joked about, and discounted as pure coincidence. Only a few breeders kept quiet, watched closely, and did some experimenting and observation to see if swordtail genes could be used to make better delta tail guppies. If any real progress has been made in this direction,

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fish appeared with the typical sword cells. The same thing could be said for wild guppies back then. If enough fish were there to pick from, swordtail types could be distinguished. Even closer to home, if you carefully observe a lip, bottom, or double-sword male guppy, and they are reasonably good, they have a good angle on the typical swords in the caudal. If you can imagine this open space between the point of Mollard, invariably, would "make" a wide called (even near-delta-shaped) fish.

Three years ago I read the theory that the addition of gulds (or even albinos) to any guppy strain would help to eliminate color mixtures and discrepancies. However it was quickly shown that the use of albinos was hard to do as they were scarce, hard to breed, not of the quality of most gray males, and the addition of albinos tended to

weaken the strain in a number of directions. In comparison, gold guppies had fewer foes, but in a very different direction. Not many people cared to breed gold guppies. While small, dainty, gold guppies were fairly easy to procure, wide colored kinds were quite hard to come by. Were usually of mixed parentage, and combining them with your best male for the purpose of eliminating black coloring was only temporary at best with the side-effect of decreasing tall wild inferior or less than true-bred gold stock. Also, people had the opposite approach and attempted to add exotic colors to the gold guppies with less than spectacular success for quite awhile. However if enough people persevere, and enough exchanges of guppies take place, eventually success of one sort or the other has to take place.

The best example, pulled from my mind

experience, is the original half black guppies with a black tail. These almost invariably were raised somewhere along the line with both gold guppies and albino ones. But, both kinds usually showed up in quite small percentages, usually one was lucky to see two light colored fish (male or female) in a hundred baby half black-biscuits. Which proved they were an extremely recessive type either due to being far back in the ancestry as compared to the half blacks on hand, or that the half black colored effectively suppressed the lighter colors. Speaking for myself it seemed to be a little of both and I took a lot of patience and time (plus tanks), to get older strain (half blacks or golds), to inbreed enough to where visible amounts would appear which brings up another point.

The coloring of gold guppies is recessive to the more normal, gray body coloring of guppies. This simply means that the gold color will not appear in the resulting young guppies from such a cross. But, if one takes a male and a female from these same mixed brood fish, mate them together then you will get gold colored guppies. The amount of this has been well worked out by laws of heredity, and it follows closely to these laws if one takes the time to mate, count and classify the baby guppies (25% golds, 75% gray guppies, second generation). Any reliable book on puppy breeding, or genetic volume will give you this information so will not bother to repeat the same facts. To be brief, the percentage of golden young obtained by breeding brother guppies to sister guppies will gradually increase with the amount of inbreeding if you have the desire to make a strain of true-breeding gold puppies.

By this time, one can just hear the reader's complaints: "What will I gain by out-crowding to gold supplies?" So taking it a logical step at a time, here is what one can reasonably expect to get, provided such is wanted.

Hybridizing, in it's full meaning, is the act of cross breeding two unrelated species to produce "hybrids" (The mating of a female horse to a male donkey with the end product being a mule-hybrid is one such example). Regrettably no real (or accurate) hybridizing of ponies has ever been done to

my knowledge with true meaning a cross to some other type of fish. However, the generalized term of making hybrids is commonly used with fancy guppies in meaning to cross two strains of guppies that are not related to one another (but are still guppies). To get maximum effects from such a cross in terms of vigor, increased body size, variation in coloring, or to "cure" partial sterility, it is best to use two puppy types that are as far removed from one another as possible, you will make a compatible mating. (Note: In using the term compatible, it simply means that the end results of the mating will give the wanted results. Such "hybrid" crosses are often ones that give inferior results, or incompatible ones). By use of golden guppies, the two kinds of guppies are removed from one another genetically speaking, as possible with only albino guppies being further removed. Therefore, a cross of a normal gray guppy strain to a normal gold strain, will at the very least, potentially give maximum hybrid progress. This effect will be almost immediately evident in the baby fish as they will appear larger and usually more active.

The mixing of gold and gray guppies has more far-reaching effects than the more immediate ones we stated above. However, it is only fair to mention that it does take some time (as measured in generations of guppies from the multitude) to see the more effective results. I'm sorry to say that I can not give reasons to why these effects happen, or even give plausible theories, have just noted them.

INTENSIFYING OF COLOR

Breeders who carry guppies in somewhat acid water or water that may lack certain minerals (but yet be fairly hard) will often complain: guppy coloration going "off" into other shades. Red, for example, going into pink, or orange shades. Mall blacks, or 3/4 blacks with red tails, often become a lighter blue rather than the wanted dusky black (or a charcoal gray). Green fish may fade out to a whitish blue, blue guppies into a mixture of pale blue with either clear areas in the color or into yellow. Other colors not specifically mentioned may become bleached, of a dull, rather than intense, coloration regardless of the changes they are not those wanted.

While mixing in a bit of gold guppy may not be a cure-all for these ailments, it certainly will help if enough generations of fish are carefully kept and cultivated. Generally speaking, only one grey-gold cross will be needed for the effects to accumulate. It would seem that while the golden genes are recessive to most of those normally associated with gray guppies, eventually with controlled inbreeding they become semi-dominant, and therefore, the full effect is to show close to the full

VIGOR

Most any guppy breeder knows that with continued breeding of any color of fancy guppy, the fish is apt to become smaller, less active, possibly semi-silent (or stunted), and often, with a loss in body size. An outcross to a related strain is the answer most often given to cure these ills, but if this out-cross is to a strain of related golds, the effects will be more spectacular (longer lasting, and less apt to adversely affect the coloration). One personal example that I have been carefully watching is a red strain that, after a decade

At the time of breeding for the red guppies, I know almost nothing about it, had no idea the line carried gold guppies and knew only vaguely of the strain's origin. Twelve generations later with close inbreeding, a good percentage of golds appear regularly but even more important, the red coloration is excellent, all width and shape is better than expected and it is one of the most active, healthy and vigorous strains of guppies that have.

COLOR CLARITY

To most guppy people who are active show participants, purity of color comes very close to the top in wanted characteristics. In the past two years, most breeder-enthusiasts have been specializing in improving color and this has brought up some odd theories. From my own observations, all colors of guppies I keep on hand have been seen to hold color better, hold it longer and be purer in the one single color in the caudal and dorsal if they have gold genes in the line. Assuming that my own experiences are not unique, would anyone this same factor would help others?

BREEDING TIPS

outcrosses as they usually are quite true-breeding for what they show.

One attribute about gold guppies that may not be fully realized. A gold guppy crossed to another gold guppy will give all golds. It does not matter how many times this same gold has been blended with gray guppies, he (or she) will still be due breeding for one thing, the gold coloration. Naturally this can be mixed as to the caudal or dorsal colors, or even with portions of the body being colored, but the background or body color will still be gold. The "gold" by the way comes in a variety of shades ranging from near-white (sometimes called blonde) to all shades of gold from pale gold to a deep, butter yellow. In some strains, a litter of baby fish may show all color variations as described, but it takes a sharp (and possibly experienced) eye with golds alone to see the differences, especially in the baby guppies.

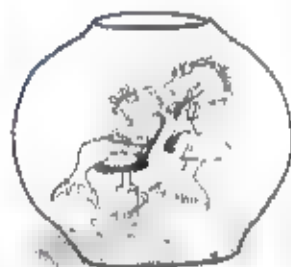
A line of gray guppies (red as one example) are familiar with once crossed with golds will most always throw percentages of golds from then on, with those becoming more in evidence with close inbreeding. Generally speaking, the addition of coloring over the basic gold will be a variable but if at all possible use red-golds for use with so-gray guppies, green-golds with green-gray etc. Naturally, if you can obtain a gold guppy of one color this is better than none at all and eventually can be made into another color with the body gold.

The best practice with out-crossing is to keep a strain pure-bred that is found (by actual experience) to be compatible with your own. If tank space is at a premium, a single tank set up to just keep on hand some of the strain needed will be adequate. Even better as stated many times before is to find another breeder (or set one up) with guppies related to your own and swap fish at intervals. This can be made into a series of "line-breeding" methods, or just a way to allow someone else to work strains compatible to your own if they can be kept reasonably pure-bred.

The above article is not meant to be the ultimate answer to all guppy problems for everyone, everywhere. It is just a series of suggestions that has been found to help.

One good reason for most guppy people not taking more advantage of out-crossing, is the lack of good and reliable breeding-type guppies to use. In the case of golden guppies, these are even more scarce. Guppies from commercial sources are often extremely disappointing, those bought at show auctions are seldom good for breeding purposes (past their prime breeding ages), and, regret to say, guppy people needing new stock for making show-fish, are very suspicious of strangers. Therefore, with the quality of strange guppies one is likely to obtain, out-crosses are seldom what they could be. This is still no reason why they cannot be made to work, all it takes is more patience. Rather than seeing success in the first young fish from such a cross, it may be far better in the long run to keep the fish, watch them closely, then the best results may appear in the second, third or later, generations. Remember success with guppies does not come over-night or even in a year except in cases of extreme luck or a lot of skill.

If you as a breeder desire to add in a little gold stock to your own, suggest you watch local tropical fish stores and your newspapers for guppy auctions and shows. Florida fish farms sell a lot of gold guppies but seldom are these likely to look good, or be in the same category as show stock. These still can be useful to use as



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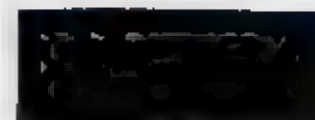
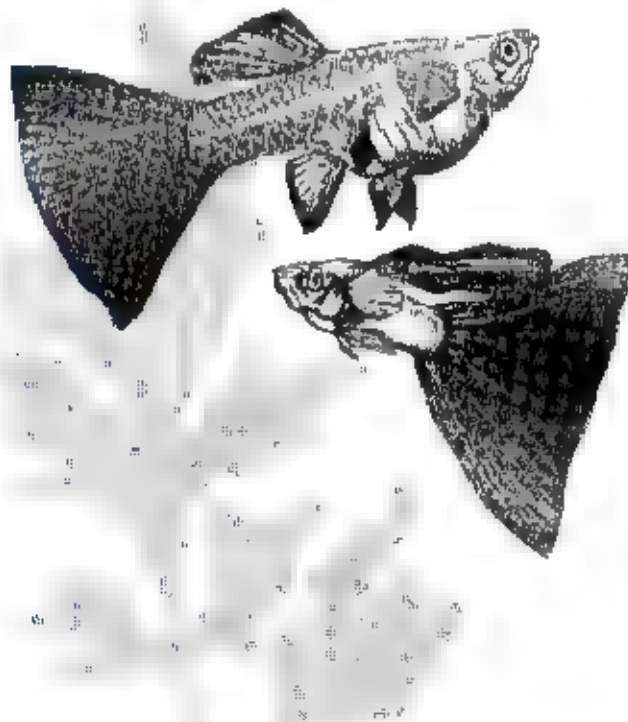
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SOURCES OF POLLUTION IN GUPPY TANKS

A sensible approach to fish health in aquariums

Elizabeth G. McGlinchy
Westside Guppy Association



In understanding how to prevent disease pathogens (bacterial, parasites, virus) from infecting fish, it may be useful to know why these pathogens are invading our hobby. The following will describe for you:

- Source of infection
- Recognition
- Prevention

SOURCE OF INFECTION

Unfortunately, bacteria that can lead to infection are always present on fish before they reach the tropical fish store. The disease pathogens can be traced to the background of the fish. They are either brought in from a natural environment or from an fish farm.

Following is a synopsis of how pathogens can grow in fish farms and at holding facilities after the fish are brought in from their natural environment.

HOLDING FACILITIES

Pathogens exist at low levels and are not harmful to the fish at its low level. In some cases the pathogens are unable to survive in the new unnatural environment of the holding facility. Others may rise in numbers increasing the fish's susceptibility to disease. Following are reasons for the increase in disease pathogens.

- An increase in fish stress resulting from handling and a foreign environment
- Overcrowding
- Susceptible fish combined with carriers
- Temperature and water conditions are favorable for pathogen growth

BREEDING FACILITIES

The disease rate in a breeding facility is not as high as in a holding facility. Breeders are often more experienced handlers of the fish and the feeding is good. Farm bred fish also do not experience as much stress as fish caught in their natural environment. Despite the positives, infection and disease are still difficult to combat.

PREVENTION

How do you prevent your fish at home from becoming diseased? By minimizing stress!!

Stress is the primary cause of fish susceptibility to disease pathogens. These pathogens are always present in a tank because it is an enclosed environment which is the perfect medium for disease growth. When fish are stressed it is harder for them to fight the pathogens. Following are several suggestions by Dr. David Ford of Aquarion Products, to keep stress at a minimum.

THE AQUARIUM AND WATER QUALITY

An aquarium should be at least fifteen

gallons. Abrupt changes in water chemistry and overcrowding are leading causes of fish stress. These conditions most frequently occur in small tanks. Thirty percent water changes should be made weekly to keep tank water healthy. Tap water is fine to use as a source of tank water if you let it stand for at least twenty-four hours to remove the dissolved air. It is important to use a good quality chlorine and chloramine remover to dechlorinate the tap water.

THE DIET

Fish need a nutritionally balanced diet. The best diet is a mixture of fish, freeze dried (or frozen) and live foods. Make sure the fish food has high quality fresh ingredients, is palatable, easily digestible, and is packaged to prevent bug infestation and preserve freshness.

RECOGNITION

You have taken all the precautions and treated your fish with tender loving care. However there is still the slim possibility your fish will get sick. The rule of thumb is know thy fish!! Daily observation of your aquarium is a relaxing practice that will allow

ALFIE'S ADVICE



you to learn of your fishes habits and quirks. Then when a fish acts strangely you will notice the change in behavior.

The first sign of disease is a change in appearance or behavior of a fish. This change may occur a few days before the appearance of other signs. If you notice a change in your fish immediately, you will most likely catch an illness in its early stages and be able to treat the fish before its early demise.

It would be wise to familiarize yourself with the natural changes that occur in your fish's lifetime. The particular traits to be familiar with are life cycle, mating habits, friends and foes, and diseases your fish are most susceptible.

Sources of information that will help to familiarize you with your fish are: aquarium fish guides, a basic disease book, hobbyist magazines and fellow hobbyists. It is important to remember that fishkeeping is fun and educational. If you are unable to diagnose a particular disease, do not get frustrated!! Seek timely advice from knowledgeable sources and act according to their recommendations. Your fish's health (and life) depends on it.

HAPPY PROJECTS

HOW TO SELECT ENTRIES

One person's venture into selecting matched entries

Tom Allen, Extracts from IFGA Bulletin, May 1988

I am one of those people who is usually surprised when things work out as planned. Maybe this is because of the numerous projects I have undertaken that had hidden steps - unanticipated or unknown to myself, and often unmentioned by those offering advice or instruction - that either made things much more complicated than planned or altered the final results in ways that were not intended.

If you have ever been to a race track, you are no stranger to the amount of concentration the average "railbird" puts in to picking his/her winners, all because he/she stands a chance of losing a two dollar bet. Yet we think nothing or placing two dollar bets each time we exhibit our tank entries with very little study and many times finish out of the money because we did not pick our entries correctly.

With yet another show season under way, let's take some time now to delve into one of the most publicized topics of our hobby: matching fish for breeder/tank entries. If you have plans of making a dent in the standings this year (and who among us does not like to see his/her name up in lights) there is no better place to amass points than in the tank classes. Sure, the quality of the fish being exhibited is usually on an equal par with the single classes but the odds are in your favor since fewer entries is most times the rule rather than the exception.

Seldom, if ever, does any breeder end up with an entire tank of perfectly matched show guppies. These well-matched entries we so often see at shows are many times the result of trial and error picking individual

fish together until the best (?) pair is found. The term "best" under these circumstances makes sense only if the breeder has tried to match each fish with every other - a job as tedious, time-consuming, and nerve-racking as ever stated. Oh, it may not be too hard if all he/she has is three fish to work with. However having to select five matched males from a tank filled with twenty beauties by matching one-to-one is mind-boggling to say the least.

Well then, is there a better way to pick tank entries? The method to be outlined in the following paragraphs is an attempt (however feeble) to document a systematic approach which has brought good results in the past. It could easily be called the "mismatch" technique since it relies heavily on our ability to select our best tank/breeder entries by a gradual elimination of all non-matching fish. Note the use of the word gradual in the preceding sentence. Whether picking winning horses or show guppies, it takes time and concentration and should not be rushed.

Let's start by placing all the guppies eligible in a tank large enough so the fish we have don't have to "belly up" to one another but small enough so our eyes do not have to

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face both east and west; when our fish decide to separate (fishes males do well in a ten gallon tank). Do not forget the necessary precautions to take in order to avoid tail-splits or tail-burn caused by drastic changes in water conditions. Also needed are a three to five gallon tank along with a couple of drum bowls. Whenever possible, do not use drum bowls to match fish since they distort the shape of the fish making your job next to impossible.

A duplication of show conditions (black

background and accurate lighting), while not an absolute necessity is a definite plus. One should be cautious not to pick fish under fluorescent fishroom lighting when incandescent spot lighting is to be used in the show. Anyone who has bred blues or greens and exhibited them knows the value of true lighting.

Once the fish have been acclimated to their new surroundings you can start to tackle the task at hand. Selecting your non matches should be done by examining your fish in the following areas:

- Body size
- Caudal Size/Shape
- Dorsal Size/Shape
- Caudal color
- Dorsal color
- Body color/markings

The sequence of the checks; will vary based on the overall likeness of the entire batch. In other words you may not even bother to check caudal color once all the guppies you have are remarkably alike in that respect. Technical then, if our plan works correctly, the final pair will be the least dissimilar and, therefore, the best matched (though slightly smaller) tank entry you have.

ENTER YOUR MATCH

Let's zero in on the Body Size category and see how the system works. Using the setup illustrated earlier select from your fifteen fish sample, the fish which are obviously larger, those obviously smaller and those obviously off colored. Place them by size (larger vs. smaller) the two drum bowls. Move the larger fish to the small tank and pass through the remainder of the checks to see if any good lab/breeder entries are available from these.

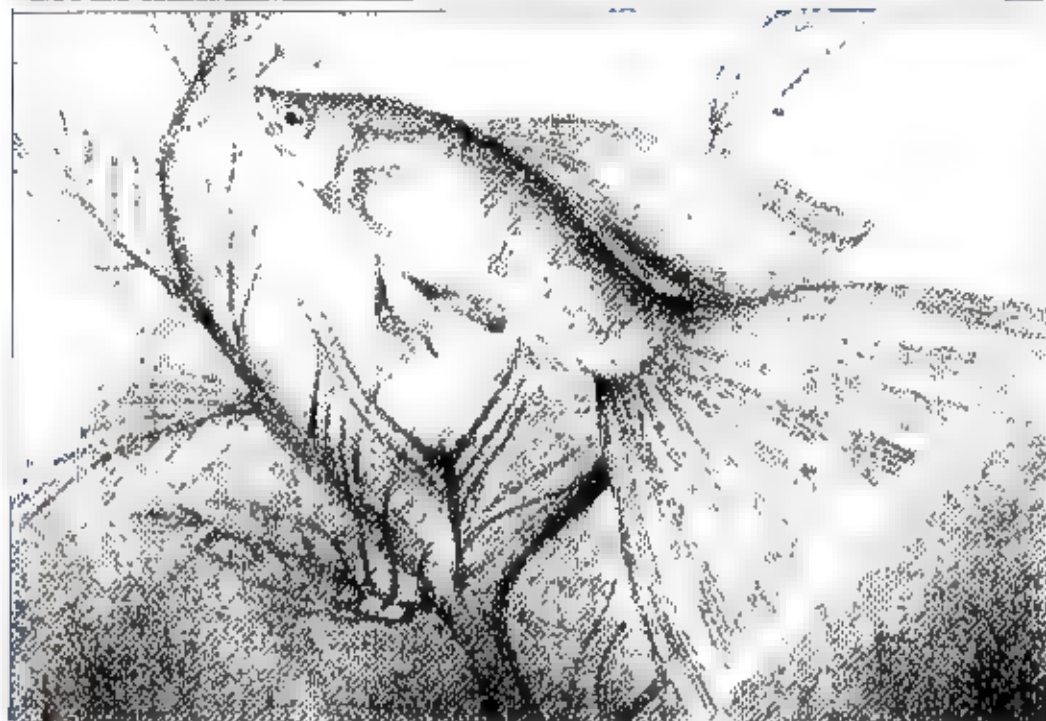
Any fish not paired in this step should be considered as a single and entered in the appropriate delta/vail based on its caudal shape. The smaller sized group can either be returned to their original tank if their size proves to be a problem or used if additional entries are needed.

Now back to our norm group. As was done with body size, the remaining guppies should be inspected for imperfection in the remaining categories: Caudal Size/Shape, Dorsal Size/Shape, Caudal Color, Dorsal Color and Body/Color Markings. Once through this phase it is a simple (?) matter of choosing pairs since the fish remaining in our norm group should be the most alike in the batch. The dropouts can also be considered for singles. Only your imagination and the available time can limit the number of possible combinations open to you. One point of caution, you cannot expect to notice those tiny flaws in your fish which trained judges see so often if you rush your selection procedure.

One must remember that if it completely within reason for a tank entry which is non-matched on body size or any other category to win a first place if the fish happen to be the best matched pair in the class. All entries compete against others in their class of competition. Slight imperfections or mismatches should not keep you from entering fish in a show. However, all other things aside, a good matched entry will beat a good mismatched entry any day.

Finally, once your matched entries have been selected, do not place them back with their brothers/sisters when they return from a show or for sure, you will be back doing this time-consuming job all over again for the next show!

GUPPY ROUNDUP



SALT FOR THE FRESHWATER AQUARIUM

The challenge is in accommodating their needs

Stephen Saunders
Northern California Guppy Association

It may seem strange to some to talk about salt for the freshwater aquarium, but you are bound to find a good supply of salt in every experienced aquarist's fishroom! Why? Because the addition of a small amount of salt to the water of most of our freshwater aquarium fish enhances their health!

What do salts do to help freshwater fish?

- Stimulates the fish to secrete more slime on their body, which impedes parasites and diseases.
- Inhibits the growth of some bacteria.
- Relieves the osmotic stress on a freshwater fish.
- It can cure or help cure some parasitic diseases of our fish.

A freshwater fish has a problem of water

entering its body due to osmotic pressure. Water travels from the surroundings which are dilute in salt to the fish's body which contains a higher concentration of salts under chemical-physical tendency known as osmotic pressure. Salt water fish have the opposite problem. The fish must get rid of the water, and does so actively at the expense of energy. Therefore, the added salt in freshwater helps slightly to reduce the osmotic pressure, so the fish has an easier time actively pumping out water.

Salt is a benefit to many fish in particular:

- Common aquarium livebearers are healthier in salted water, some like molts seem to need the salt.
- Similarly many killifish do better with some salt in their water and again some, like the *Natobrachius* do not survive long



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without it.

• African cichlids need water with a high undissolved salts content. This goes beyond the table salt type salt, sodium chloride. Africans need hard alkaline water, i.e. salts of calcium and magnesium in their water.

• Gobies, such as the bumble bee goby, monos, puffers and scots love salt. They come from brackish water that is partially salt water partially freshwater.

• I have found salt in a beta jar is very helpful. It seems not only to help prevent the growth of spoilage bacteria which foul a beta jar's water, but also prevents the slime build up that often occurs on the sides of beta jars.

Some fish may not appreciate added salt to the water. Tetras are a good example. Catfish, particularly Corydoras catfish are said to be sensitive to salt. But this often quoted tale has no basis. Snails do not seem to like salt, in my experience, ramshorn and mystery snails grow poorly and are less prolific in salty water.

Regarding salt for the freshwater aquarium, you actually have several choices.

By salt we usually mean sodium chloride (NaCl) the same "salt" that you use in the table shaker for your dinner. But chemicals have a broader concept of salt, meaning any two elements or radicals that bind together ionically. This is admittedly a very useless definition for the layman, but, I would at least like to point out that there are two

different definitions and meanings for what salt is.

TABLE SALT the salt one normally uses on the table is iodized salt. It is sodium chloride with iodine added, as humans need a source of iodine in their diet as do virtually all animals and have difficulty obtaining it. For years there has been a school of thought among aquarists that iodine in iodized salt is bad for fish. The basis of which I have not been able to uncover despite looking. I have asked Mr. John Kuhns, a research chemist with the pet food manufacturer, Kordon. He says non-iodized or iodized, "I make no difference. It's one of those unsubstantiated 'old wives tales' which abound in the hobby. Information propagated by folks who never stopped to test their recommendations." Certainly some aquarists have cured fish health problems with iodine.

This salt is sometimes called **COMMON SALT**.

EPSON SALT is not sodium chloride, but rather magnesium sulfate, a very different chemical compound. While some aquarists have used this for African Cichlids, or supposedly to help livebearers give birth (?), it is not the salt we generally use in the aquarium.

ROAD SALT or **ROCK SALT** is basically unrefined table salt, sodium chloride. I have used it extensively for hatching brine shrimp eggs. But it sometimes will contain anti-caking agents, particularly sodium ferro-

cyanide. Sodium ferro-cyanide in water under light will liberate cyanide, and although it may be in trace amounts, I would rather not have it in with my fish.

PICKLING SALTS or **KOSHER SALTS** or **COMMON SALT** are regular table salt without the iodine. They are indisputably suitable for use in the aquarium.

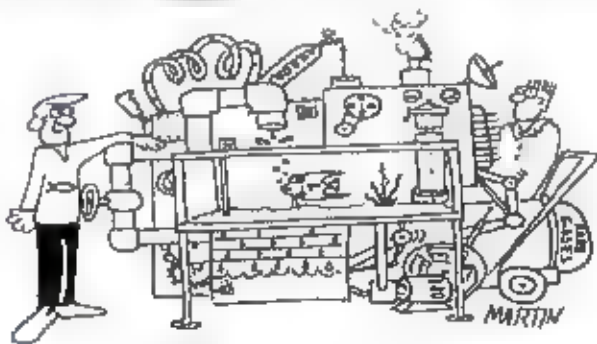
WATER CONDITIONER SALT used for re-charging water softeners is cheap and easy to obtain in bulk and is similar to pickling salts or kosher salts. I have brought this salt for my tanks as I have quite a few.

SYNTHETIC SEA WATER SALT is suitable for use in the aquarium too. It does contain a variety of salts, sodium chloride being the most abundant. However it will add to the total alkalinity and hardness of the water. If your tap water is already hard and alkaline (high pH), it would be wise to use some other salt instead.

SEA SALT can be bought in most health food and warehouse stores. It is produced by "drying" seawater. It would be good for artificial sea water except not all the minerals in "drying" sea water precipitate out at the same rate. Some of our fustler salt water fish and invertebrates do not like it. It does not usually contain the correct balance of salt for a salt water aquarium, but for use in the freshwater aquarium, you typically have the same problem as with the synthetic sea water salt.

AQUARIUM SALT purchased at the pet store is nothing more than non-iodized salt identical to pickling or kosher salt. The wrapping and the words "aquarium salt" increase the price by as much as four hundred percent. Better to pick up salt in the grocery store and use the change for a brine shrimp treat for your finny pets.

HOW MUCH SALT? usually use about one tablespoon of salt to four to five gallons of water. Mollies, Nothobranchius killifish, gobies and cichlids will love you if you use two or three times as much. With bettas in the past I also added some Acriflavine, to help inhibit bacteria, but lately I have been trying Kordon's Amquel and Novaguard.



You know, Bob, this aquarium really makes me feel close to nature!

SOME OF THIS, SOME OF THAT

By Paul Gorski, Judging Board Chairman
Stan Shubel, Former President
International Fancy Guppy Association

Question: Are there any benefits to raising show guppies outside where they will be exposed to the elements and sunlight?

- Richard Fleming

STAN SHUBEL Tail rot can be caused by a variety of reasons, most of which result from overcrowding, overfeeding or even changing too much water on older males. First of all, overfeeding usually causes an increase in bacteria and ammonia levels in the tank. This condition in a matter of a few days can turn a tank full of show curlenders into a bunch of ragged, sickly individuals, and six months or more of hard work is all down the drain.

Some lines seem to be particularly susceptible to this misery while others are not bothered by it. With my own method of fish raising, I have a tendency to over crowd my fish and if I overfeed or get lazy in my water changes, and up with a mess.

Question: How many fish per tank do you try not to exceed?

Bud Clarke

STAN SHUBEL Normally I try not to exceed three females and one and a half to two adult males per gallon of water.

Question: Why is it that certain lines of guppies the females seem to throw a high percentage of deformed fry (bent spines)? Is this an indication that the line has been too highly inbred, and an outcross is in order?

Christine Evans

PAUL GORSKI Not necessarily. It could just be faulty selection of breeders. I do not believe that any color line can be labeled as throwing a high percentage of deformities. You have to blame that specific line not the general color class.

Question: What do you recommend for a pesky case of tail rot on my Blue Deltas? It seems I have tried everything to no avail. Do you trim the tails to eliminate the diseased area of the fins, or do you medicate

the water?

- Richard Fleming

STAN SHUBEL Tail rot can be caused by a variety of reasons, most of which result from overcrowding, overfeeding or even changing too much water on older males. First of all, overfeeding usually causes an increase in bacteria and ammonia levels in the tank. This condition in a matter of a few days can turn a tank full of show curlenders into a bunch of ragged, sickly individuals, and six months or more of hard work is all down the drain.

Some lines seem to be particularly susceptible to this misery while others are not bothered by it. With my own method of fish raising, I have a tendency to over crowd my fish and if I overfeed or get lazy in my water changes, and up with a mess.

It is possible to trim off the diseased portion and paint the edge with methylblue blue, however the caudal does not usually grow back completely and you end up with a fish that is too short caudal wise.

I do not like to use antibiotics mainly because they are usually ineffective and if you treat the whole tank it destroys the good bacteria along with the bad. My medicines of choice are Bionex or a combination of Acriflavine and Formaldehyde. Care should be exercised in both the handling and use of formaldehyde around the fishroom. Bionex is a powerful medicine also, so follow the directions when using it.

Question: What colors and/or strains of show guppies have you developed?

Michael Scott

STAN SHUBEL My initial fish were purchased from a pet store and were a sort of a red bodied semi-fancy guppy. In about a five year period I had developed reds, purples, multis, halfblack reds and blue/green bodied lines.

Question: Guppies seem to have been more popular in the 1960's than waned somewhat. Is this simply fashion in fish, or are there other factors in play that have affected the fancy guppy's popularity?

John Caldeira

PAUL GORSKI I think the popularity of guppies was greater in the 1960's because economically it was easier to have a setup. Electricity, gas, water were all cheaper then and a fishroom did not cost so much to maintain. Our society has exploded in recent years with an external entertainment options, and as we all know, a fish hobby keeps you close to home.

Question: What lighting schedule do you recommend for fancy guppies?

- Lee Flanders

STAN SHUBEL If you are using a timer have the lights come on at least an hour before you feed the guppies, and be on at least an hour after the last feeding. My lights are on and off for a total of twelve hours per day.

Question: What characteristics or characteristics do you look for in male of female guppies to enhance the line?

Nick Visser

STAN SHUBEL For the male I would pick a well balanced fish with the color characteristics I am looking for. The caudal and dorsal shape would be as close as possible to the ideal judging standards (as described in the International Fancy Guppy Association Rules & Judging Standards Book).

In the female I look for a compact body, thick peduncle area, wide spread fins in the caudal, and an even distribution of color in the caudal and perhaps a touch of the same color in the dorsal. When it comes time for me to set up my breeders, spend more time picking the female than I do the male.

MESSAGE FROM THE EDITOR

The following message has appeared in the Guppy Roundtable on several occasions, most recently the September 1994 issue. To my chagrin, I received another telephone call last night from a reader who had not received their current issue of the newsletter. Unfortunately, telephone calls to me will not eliminate the difficulties several subscribers are experiencing with the mail service from their local post offices. The postal regulations that govern delivery of second class mail have very specific criteria for readers with delivery problems of the Guppy Roundtable to follow. I am anxious to accommodate every subscriber's expectations of all aspects of the Guppy Roundtable, including but not limited to the timely delivery of every reader's issue of the newsletter each month. To enable me to accomplish this, please take heed of the postal service's requirements relating to problems with delivery of second class mail.

The Supervisor of the Second Class Mail Department, Ms. Cathy Brewster, at the General Mail Facility from which the Guppy Roundtable is mailed each month, is being very cooperative with my efforts to ensure timely delivery of our

newsletter to each subscriber. She requests that anyone that receives their issue more than seven days from the date which it was mailed (the release date is the twelfth day of each month), receives their issue in poor condition, or does not receive their issue to send me a note advising me of the difficulties you are experiencing (be sure to include your name, address and zip code).

Ms. Brewster will contact the mail facilities that are giving subscribers substandard delivery service and advise them that the Guppy Roundtable is coming through their post office on a monthly basis, and that the newsletter should be delivered and treated as Second Class Mail.

A limited number of issues are printed each month, and as a result I do not have extra copies to send subscribers that experienced a delivery problem with their newsletter. Please be advised your subscription will be extended one month if you notify me in writing that you did not receive a particular issue. Everyone's cooperation regarding this matter will be greatly appreciated.

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ANNOUNCEMENT

Effective immediately the Westside Guppy Association assumes all authority, claims, controls, duties, interests, liabilities, obligations, privileges, responsibilities and rights concerning the publication of the Guppy Roundtable under a pending license agreement with the Pan Pacific Guppy Association. The pendency and/or finalization of said license agreement will not in any manner adversely or materially affect existing obligations with the International Fancy Guppy Association relating to the publication of the Guppy Roundtable as its official monthly publication, including but not expressly limited to the profit split arrangement.

This past year has been a difficult one for the publication staff of the Guppy Roundtable, but thanks to the support of our loyal subscribers we were able to come through it in much better condition than we originally thought.

In the months to come, I feel confident that the

Guppy Roundtable will continue to perform in a manner that will result in an increase in advertising revenue and paid subscriptions that will far exceed our projections.

With the help of the new members of the publication staff, the outlook for the coming year is brighter than it has been for some time for the Guppy Roundtable. With our positive, assertive attitude, we are confident that nothing will stop us in our relentless pursuit to publish an informative, quality publication that our subscribers have come to expect from us.

All future correspondence or questions relating to any aspect of publication of the Guppy Roundtable should be addressed to

M. Davidene Tait;
c/o Westside Guppy Association
3619 Mentone Avenue, Unit 8
Los Angeles, California 90034-5643

OFFICIAL INTERNATIONAL FANCY GUPPY ASSOCIATION ACCUMULATIVE AWARD POINT TOTALS 1994 - 1995 SHOW SEASON THROUGH AUGUST 28, 1994

DELTA CLASSES

ALBINO		ADC		ADC BICOLORED		BLACK	
1 Dwight Parton	640	1 Dan Whitmer	940	1 Steve Wells	600	1 Tim Peters	1700
2 Jim Alderson	500	2 B VanDerLangeberg	620	2 Davidene Tait	100	2 Michael Busch	460
3 Bill Klein	480	3 Tyrone Burgess	580			3 Tom Wadsworth	360
4 Gene Golimowski	340	4 Stephen Kwartlen	120				
BLUE		BLUE/GREEN BICOLORED		BRONZE		GOLD	
1 Jim Alderson	1440	1 Elaine Poy	1000	1 Tim & Pat Allen	1320	1 B VanDerLangeberg	820
2 Val Pites	420	2 Tim & Pat Allen	200	2 Davidene Tait	200		
3 Tom Humphreys	280	3 Fred Fragasso	120	3 M & M Golimowski	140		
4 Frank Orlica	200	4 Davidene Tait	120	4 Tyrone Burgess	40		
GREEN		HALF-BLACK ADC		HALF-BLACK BLUE		HALF-BLACK PASTEL	
1 Jim Alderson	1080	1 Stephen Kwartlen	1400	1 Jim Alderson	1380	1 Joe Rankin	2280
2 Davidene Tait	780	2 Tyrone Burgess	300	2 Don Lewis	180	2 Craig Smith	120
3 Jerry Magafiro	320	3 Jim Alderson	220	3 Craig Smith	120	2 Don Espinoza	80
4 Robert Schaetzl	80	4 Ed Richmond	160	4 Stephen Kwartlen	60	4 Jim Maser	40
HALF-BLACK PURPLE		HALF-BLACK RED		HALF-BLACK YELLOW		MULTI	
1 Ed Richmond	720	1 Jim Alderson	1000	1 Gary Montano	1280	1 Fred Fragasso	480
2 Stephen Kwartlen	320	2 Craig Smith	220	1 Elva & Marie Bryant	1280	2 Dwight Parton	480
3 Davidene Tait	200	3 Iwan Solomon	200			3 Jim Smith	320
4 Gary Montano	80	4 Davidene Tait	80			4 Mike Khalid	200
PURPLE		RED		RED BICOLORED		SHAKESKIN GOLD	
1 Jim Alderson	1280	1 Tom Humphreys	680	1 Tom Staggel	1200	1 Frank Orlica	2440
2 B VanDerLangeberg	240	2 Jim Alderson	680	2 Craig Smith	500	2 B VanDerLangeberg	80
3 Ed Richmond	200	3 Davidene Tait	380	3 Frank Orlica	180		
3 Dick & Andrea Wagner	200	4 Don Espinoza	200	4 Jim Jiru	100		
SHAKESKIN VARIATED		SHAKESKIN		YELLOW		JUNIOR OVERALL	
1 Michael Brewer	680	1 Dick & Andrea Wagner	1240	1 B VanDerLangeberg	1140	1 Gene Golimowski	800
2 Bill Klein	200	2 Bob Resch	880	2 Tyrone Burgess	80	2 Jeffrey Swadlow	200
		3 Dan Whitmer	580			3 Kathleen Carrowell	80
		4 Stephen Kwartlen	580				

GRAND OVERALL MALE

1 Jim Alderson	3880
2 Craig Smith	3680
3 Joe Rankin	3600
4 Bob VanDerLangeberg	2200
5 Tom & Pat Allen	1480
6 Stephen Kwartlen	2080
7 Davidene Tait	1940
8 Frank Orlica	1500
9 Tom Humphreys	1440
10 Bill Klein	1380

GRAND OVERALL FEMALE

1 Davidene Tait	2500
2 Dan Whitmer	680
3 Craig Smith	680
4 Gene Golimowski	640
5 Frank Orlica	480
6 M & M Golimowski	360
7 Tom & Pat Allen	180
8 Mary Cecilia	160
9 David Pines	100
10 Don Lewis	100
11 Tom Peters	100
12 Tom Humphreys	80
13 Tom Wadsworth	80

BREEDER MALE

1 Jim Alderson	1740
2 Vincent Sheely	320
3 Bob VanDerLangeberg	280
4 David Hinderbrook	100

BREEDER FEMALE

1 Dan Whitmer	1120
2 Craig Smith	200
3 Don Lewis	120
4 Davidene Tait	80

NOVICE OVERALL

1 Craig Smith	2140
2 Bill Smakulski	680
3 Pamela Carrowell	40

VEIL CLASSES

BODY/EYE GOLD		HALF-BLACK		SHAKESKIN		SOLID CALFAL		VARIATED CALFAL	
1 Tom & Pat Allen	600	1 Bob Resch	300	1 Bill Klein	480	1 Gene Golimowski	280	1 Bob Resch	280
2 Gene Golimowski	40	2 Davidene Tait	120	2 Milton Brewer	80	2 M & M Golimowski	200	2 Stephen Kwartlen	180
		3 Elva & Marie Bryant	80			3 Craig Smith	200	3 Steven Wolf	180
						4 Janey Magnifico	100	4 Craig Smith	100

FEMALE CLASSES

ALBINO FEMALE		ADC FEMALE		BLACK FEMALE		BLUE/GREEN FEMALE		BRONZE FEMALE	
1 Gene Golimowski	540	1 Davidene Tait	400	1 Davidene Tait	380	1 Davidene Tait	500	1 Tom & Pat Allen	480
2 Frank Barta	220	2 Gene Golimowski	100	2 Tim Peters	200	2 David Polunak	100	2 Gene Golimowski	280
3 M & M Golimowski	80	3 Mary Cecilia	80	3 Tom Wadsworth	80	3 Dan Whitmer	80	3 M & M Golimowski	40
		4 Luke Roebuck	40						
GOLD FEMALE		HALF-BLACK ADC FEMALE		HALF-BLACK RED FEMALE		RED FEMALE			
1 Gene Golimowski	260	1 Davidene Tait	340	1 Frank Barta	520	1 Davidene Tait	700		
1 M & M Golimowski	260	2 M & M Golimowski	180	2 Iwan Solomon	40	2 Frank Barta	140		
		3 Steven Swadlow	100						
		4 Tom Humphreys	80						

PAN PACIFIC GUPPY ASSOCIATION SHOW RESULTS

AUGUST 6 - 7, 1994
THREE HUNDRED SIXTY-THREE ENTRIESBEST OF SHOW TANK
(TWENTY-ONE ENTRIES)

- | | | | |
|------------------------------------|-------------------------------------------------|-----------------------------------------------|-------------------------------------------------|
| FIRST PLACE
JIM ALDERSON
RED | SECOND PLACE
JIM ALDERSON
HALF-BLACK BLUE | THIRD PLACE
JIM ALDERSON
HALF-BLACK RED | FOURTH PLACE
JOE RANKIN
HALF-BLACK PASTEL |
|------------------------------------|-------------------------------------------------|-----------------------------------------------|-------------------------------------------------|

BEST OF SHOW MALE DELTA
(TWENTY-ONE ENTRIES)

- | | | | |
|---------------------------------------|-------------------------------------------------|-------------------------------------|------------------------------------------------|
| FIRST PLACE
JIM ALDERSON
ALBINO | SECOND PLACE
JOE RANKIN
HALF-BLACK PASTEL | THIRD PLACE
TOM HUMPHREYS
RED | FOURTH PLACE
JIM ALDERSON
HALF-BLACK AOC |
|---------------------------------------|-------------------------------------------------|-------------------------------------|------------------------------------------------|

BEST OF SHOW MALE SWORD/VEIL TAIL
(SEVEN ENTRIES)

- | | | | |
|--------------------------------------------|-------------------------------------------|----------------------------------------|---------------------------------------------------|
| FIRST PLACE
DAVIDENE TAIT
HALF-BLACK | SECOND PLACE
CRAIG SMITH
VARIEGATED | THIRD PLACE
BILL KLEIN
SHAKESPIN | FOURTH PLACE
TOM & PAT ALLEN
BODIYEYE COLOR |
|--------------------------------------------|-------------------------------------------|----------------------------------------|---------------------------------------------------|

BEST OF SHOW FEMALE
(NINE ENTRIES)

- | | | | |
|------------------------------------------------|---------------------------------------|-------------------------------------|---------------------------------------------|
| FIRST PLACE
DAVIDENE TAIT
HALF-BLACK AOC | SECOND PLACE
CRAIG SMITH
NOVICE | THIRD PLACE
DAVIDENE TAIT
RED | FOURTH PLACE
DAVIDENE TAIT
BLUE/GREEN |
|------------------------------------------------|---------------------------------------|-------------------------------------|---------------------------------------------|

BREEDER MALE
(FIVE ENTRIES)

- | | | | |
|-----------------------------|------------------------------|-----------------------------|------------------------------|
| FIRST PLACE
JIM ALDERSON | SECOND PLACE
JIM ALDERSON | THIRD PLACE
JIM ALDERSON | FOURTH PLACE
JIM ALDERSON |
|-----------------------------|------------------------------|-----------------------------|------------------------------|

BREEDER FEMALE
(THREE ENTRIES)

- | | | | |
|----------------------------|-----------------------------|----------------------------|--|
| FIRST PLACE
DAN WHITMER | SECOND PLACE
DAN WHITMER | THIRD PLACE
DAN WHITMER | |
|----------------------------|-----------------------------|----------------------------|--|

JUNIOR DELTA
(NO ENTRIES)JUNIOR TANK
(NO ENTRIES)JUNIOR VEIL
(NO ENTRIES)JUNIOR FEMALE
(NO ENTRIES)NOVICE DELTA
(SEVEN ENTRIES)

1. Craig Smith
2. Craig Smith
3. Craig Smith
4. Craig Smith

NOVICE TANK
(ONE ENTRIES)

1. Craig Smith
2. Craig Smith
3. Craig Smith
4. Craig Smith

NOVICE VEIL
(ONE ENTRIES)

1. Craig Smith
2. Craig Smith
3. Craig Smith
4. Disqualified

NOVICE FEMALE
(ONE ENTRIES)

1. Craig Smith
2. Craig Smith
3. Craig Smith
4. Craig Smith

BODIYEYE COLOR VEIL
(TWO ENTRIES)

1. Tom & Pat Allen
2. Tom & Pat Allen

HALF-BLACK VEIL
(ONE ENTRIES)

1. Davidene Tait
2. Bob Reseach
3. Bob Reseach
4. Bob Reseach

SHAKESPIN VEIL
(ONE ENTRIES)

1. Bob Klein

SOLID VEIL
(ONE ENTRIES)

1. Craig Smith
2. Gene Golemowski
3. Gene Golemowski
4. Gene Golemowski

VARIEGATED VEIL
(ONE ENTRIES)

1. Craig Smith
2. Bob Reseach
3. Bob Reseach
4. Bob Reseach

ALBINO FEMALE
(FIVE ENTRIES)

1. Gene Golemowski
2. M & M Golemowski
3. Gene Golemowski
4. Gene Golemowski

AOC FEMALE
(FOUR ENTRIES)

1. Davidene Tait
2. Davidene Tait
3. Davidene Tait
4. Lyke Roebuck

BLACK FEMALE
(ONE ENTRIES)

1. Davidene Tait
2. Davidene Tait
3. Tim Peters
4. Tim Peters

BLUE/GREEN FEMALE
(FIVE ENTRIES)

1. Davidene Tait
2. Davidene Tait
3. Davidene Tait
4. Davidene Tait

BRONZE FEMALE
(FOUR ENTRIES)

1. Gene Golemowski
2. Tom & Pat Allen
3. Tom & Pat Allen
4. M & M Golemowski

GOLD FEMALE
(THREE ENTRIES)

1. Gene Golemowski
2. Gene Golemowski
3. M & M Golemowski

HALF-BLACK AOC FEMALE
(FIVE ENTRIES)

1. Davidene Tait
2. Tom Humphreys
3. M & M Golemowski
4. Davidene Tait

HALF-BLACK RED FEMALE
(NO ENTRIES)RED FEMALE
(NO ENTRIES)

1. Davidene Tait
2. Davidene Tait
3. Davidene Tait
4. Davidene Tait

JUDGES - Paul Gorski, Jim Alderson, Frank Chang, Leroy McChesney and Rose McCreary

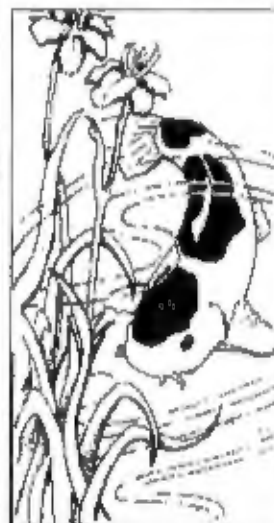
ASSISTANT JUDGE - Mike Khalid

OBSERVERS - Manon Amstrong, Bobby Joe Bean, Jr., Bobby Joe Bean, II, Chuck Bratz, Renee Bratz, Dennis Brown, Michael Grabowski, Craig Hestepzki, Russ Horgan, Ronita Lipshin, Joel Lipshin, Elaine Roy, Larry Smith and Jay Whiters

SHOW SCHEDULE

FIRST HALF 1994-1995
SHOW SEASONGUPPY ASSOCIATES OF
MILWAUKEE
SHOW DATES
November 4 - 5, 1994*

*ANNUAL MEETING



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Dealer Listings and much, much more.ALBINO DELTA
(FOUR ENTRIES)

1. Jim Alderson
2. Gene Golemowski
3. Frank Chang
4. Gene Golemowski

AOC BICOLOR DELTA
(ONE ENTRIES)

1. Davidene Tait

BLUE DELTA
(THREE ENTRIES)

1. Jim Alderson
2. Chuck & Renee Bratz
3. Jim Alderson
4. Jim Alderson

BRONZE DELTA
(FOUR ENTRIES)

1. Tom & Pat Allen
2. Davidene Tait
3. Davidene Tait
4. M & M Golemowski

GREEN DELTA
(SEVEN ENTRIES)

1. Davidene Tait
2. Davidene Tait
3. Davidene Tait
4. Jim Alderson

H-B BLUE DELTA
(FIVE ENTRIES)

1. Jim Alderson
2. Jim Alderson
3. Jim Alderson
4. Jim Alderson

H-B PURPLE DELTA
(FIVE ENTRIES)

1. Davidene Tait
2. Stephen Kwatler
3. Davidene Tait
4. Davidene Tait

H-B YELLOW DELTA
(EIGHT ENTRIES)

1. Elvis & Marie Bryant
2. Gary Mousseau
3. Gary Mousseau
4. Elvis & Marie Bryant

PURPLE DELTA
(SEVEN ENTRIES)

1. Dan Whitmer
2. Tom & Pat Allen
3. Jim Alderson
4. Jim Alderson

RED BICOLOR DELTA
(SEVEN ENTRIES)

1. Craig Smith
2. Bruce Jung
3. Fred Staggall
4. Craig Smith

SNAKE VAR DELTA
(ONE ENTRIES)

1. Bill Klein

SWORDTAIL SINGLE
(FOUR ENTRIES)

1. Dick & Andrea Wagner
2. Dick & Andrea Wagner
3. Bob Reseach
4. Mike Khalid

ALBINO TANK
(FOUR ENTRIES)

1. Jim Alderson
2. Gene Golemowski
3. Bill Klein
4. Frank Chang

AOC BICOLOR TANK
(NO ENTRIES)BLUE TANK
(FOUR ENTRIES)

1. Jim Alderson
2. Jim Alderson
3. Jim Alderson
4. Jim Alderson

BRONZE TANK
(ONE ENTRIES)

1. Tom & Pat Allen

GREEN TANK
(NO ENTRIES)

1. Davidene Tait
2. Jim Alderson
3. Jim Alderson
4. Davidene Tait

H-B BLUE TANK
(FOUR ENTRIES)

1. Jim Alderson
2. Jim Alderson
3. Jim Alderson
4. Jim Alderson

H-B PURPLE TANK
(ONE ENTRIES)

1. Disqualified
2. Disqualified

H-B YELLOW TANK
(NO ENTRIES)

1. Gary Mousseau
2. Gary Mousseau
3. Elvis & Marie Bryant
4. Gary Mousseau

PURPLE TANK
(FIVE ENTRIES)

1. Jim Alderson
2. Jim Alderson
3. Jim Alderson
4. Jim Alderson

RED BICOLOR TANK
(SEVEN ENTRIES)

1. Tom Staggall
2. Craig Smith
3. Tom Staggall
4. Tom Staggall

SNAKE VAR TANK
(NO ENTRIES)

1. Disqualified

SWORDTAIL TANK
(TWO ENTRIES)

1. Dick & Andrea Wagner
2. Disqualified

AOC DELTA
(ONE ENTRIES)

1. Dan Whitmer
2. Tyrona Burger
3. Bob VanDerLinden
4. Bob

BLACK DELTA
(EIGHT ENTRIES)

1. Tim Peters
2. Tim Peters
3. Tim Peters
4. Tim Peters

BLUE/GREEN BI DELTA
(SEVEN ENTRIES)

1. Tom & Pat Allen
2. Davidene Tait
3. Elaine Poy
4. Elaine Poy

GOLD DELTA
(NO ENTRIES)

1. Bob VanDerLinden
2. Disqualified
3. Disqualified
4. Disqualified

H-B AOC DELTA
(SEVEN ENTRIES)

1. Jim Alderson
2. Jim Alderson
3. Davidene Tait
4. Jim Alderson

H-B PASTEL DELTA
(EIGHT ENTRIES)

1. Joe Rankin
2. Joe Rankin
3. Joe Rankin
4. Joe Rankin

H-B RED DELTA
(ONE ENTRIES)

1. Jim Alderson
2. Jim Alderson
3. Craig Smith
4. Jim Alderson

MULTI DELTA
(ONE ENTRIES)

1. Davidene Tait
2. Jim Smith
3. Jim Smith
4. Dennis Brown

RED DELTA
(THIRTEEN ENTRIES)

1. Tom Humphreys
2. Tom Humphreys
3. Jim Alderson
4. Tom Humphreys

SNAKE SOLID DELTA
(NO ENTRIES)

1. Frank Ortega
2. Frank Ortega
3. Frank Ortega
4. Frank Ortega

SWORDTAIL DOUBLE
(ONE ENTRIES)

1. Dan Whitmer
2. Bob Reseach
3. Dan Whitmer
4. Bob Reseach

YELLOW DELTA
(TWO ENTRIES)

1. Bob VanDerLinden
2. Bob VanDerLinden

AOC TANK
(FOUR ENTRIES)

1. Dan Whitmer
2. Dan Whitmer
3. Bob VanDerLinden
4. Disqualified

BLACK TANK
(SEVEN ENTRIES)

1. Tim Peters
2. Tim Peters
3. Tim Peters
4. Tim Peters

BLUE/GREEN BI TANK
(FIVE ENTRIES)

1. Elaine Poy
2. Elaine Poy
3. Elaine Poy
4. Elaine Poy

GOLD TANK
(TWO ENTRIES)

1. Disqualified
2. Disqualified

H-B AOC TANK
(ONE ENTRIES)

1. Stephen Kwatler
2. Stephen Kwatler
3. Gary Mousseau
4. Steven Kwatler

H-B PASTEL TANK
(NO ENTRIES)

1. Joe Rankin
2. Joe Rankin
3. Craig Smith
4. Joe Rankin

H-B RED TANK
(ONE ENTRIES)

1. Jim Alderson
2. Craig Smith
3. Jim Alderson
4. Jim Alderson

MULTI TANK
(ONE ENTRIES)

1. Mike Khalid

RED TANK
(ONE ENTRIES)

1. Jim Alderson
2. Jim Alderson
3. Jim Alderson
4. Davidene Tait

SNAKE SOLID TANK
(FOUR ENTRIES)

1. Frank Ortega
2. Frank Ortega
3. Frank Ortega
4. Frank Ortega

SWORDTAIL TANK
(SEVEN ENTRIES)

1. Bob Reseach
2. Stephen Kwatler
3. Dan Whitmer
4. Dick & Andrea Wagner

YELLOW TANK
(TWO ENTRIES)

1. Disqualified
2. Disqualified

JIM ALDERSON 20835 Golden Springs Drive Diamond Bar, California 91788 (LETTERS ONLY)	Blues, Greens, Half-Black AOC's, Half-Black Blues, Reds, Variegated Snakeskins
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FRANK CHANG 22855 Hatten Hills Road Yuba Linda, California 91787 714 862-3182	Blues, Half-Black AOC's, Half-Black Blues, Half- Black Pastels, Half-Black Reds, Red Allines, Reds, Snakeskins
FRED FRAGASCO 407 East 88th Street New York, New York 10028 212 828-6770	Blues, Purples, Reds
BILL KLEIN 2907 South 37th Street Milwaukee, Wisconsin 53218 414 871-8804	Half-Black Yellows, Red Allines, Snakeskins, Variegated Snakeskins
KENNETH KLIMPEL 1220 Twicken Oaks Road St. Cloud, Florida 34771 407 882-8848	Blacks, Blues, Greens, Half-Black AOC's, Purples, Red Allines, Reds
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GARY MOUSSEAU 39172 Mural Drive Sterling Heights, Michigan 48313 (LETTERS ONLY)	Greens, Half-Black Yellows, Purples, Reds
TIM PETERS 161 Old County Road Dolans, Missouri 63341 314 867-2889	Blacks, Purples
ED RICHMOND 40 Wellington Court Union Island, New York 10514 716 781-0188	Allines, Blues, Half-Black AOC's, Purples, Reds
JIM ROUSSELL 50 Elm Avenue Brockton, Massachusetts 01940 508 586-7324	Greens, Half-Black Pastels
STAN SHUBEL 8715 Hidden Lake Drive Novato, Michigan 48443 313 548-4041	Blues, Half-Black Blues, Half-Black Reds, Reds
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IRWIN SOLOMON 1400 S.W. 124th Terrace Pembroke Pines, Florida 33027 305 430-1854	Half-Black Reds, Mules
TERRY WASYLINK 1934 Deer Creek Run Covington, Ohio 44010 (letters only)	Purples
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*The Guppy Associates of
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regards the honor of your
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Banquet and Awards Ceremony
to be held on
November 5, 1994
at the*

Midway Hotel - Milwaukee Airport

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*6:00PM - Open Bar
7:00PM - Buffet
8:00PM - Awards
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R.S.V.P. before October 18, 1994

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**Davidson Tait
Westside Guppy Association
3618 Marlene Avenue, Unit 8
Los Angeles, California 90034-5643**

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